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EXPERIMENTAL RESEARCH IN SYPHILIS

WITH ESPECIAL REFERENCE TO SPIROCHÆTA PALLIDA (TREPONEMA PALLIDUM)

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According to history, syphilis was not known, or, at least, was not recognized in Europe, until toward the end of the fifteenth century. It is considered probable that it was first introduced into Europe from America by the sailors of Columbus. The epidemic form with which this disease ravaged Europe in those early days has suggested that it is caused by a transmissible virus. No definite search, however, for such an infectious agent was possible until the discovery of the microscope. The first one to describe an organism in syphilitic lesions was Donné, who, in 1837, found a spiral organism to which Müller gave the name of *Vibrio lineola*. As no sharp differentiation between the non-syphilitic and syphilitic lesions had been yet established at that time, the finding of a spiral organism was inadequate to prove that it had any etiologic relation to syphilis. Bassereau, in 1852, rendered a great service by separating definitely the venereal sore from the true chancre, thus giving the basis for accurate investigations.

Research in syphilis became henceforth increasingly active, and the discoveries of the causative organism were announced year after year from different quarters, only to be disproved after a shorter or longer period of refutation and controversy among the investigators at the time. Hallier, in 1869, found in the syphilitic blood his *Coniothecium syphiliticum* and held it as the cause. Lostorfers, in 1872, announced his discovery of minute sparkling granules in the syphilitic blood which was kept for a few days in a moist chamber, but his finding was discredited by Neumann, Biesiadecki, Vajda and others. Then came, in 1878-9, Klebs' discovery in chancre-juice of numerous actively mobile granules and rods which he called *Helicomonades*. In 1882, Birch-Hirschfeld stained in the tissues from gumma, papules and chancres, minute bacteria which others considered as mast-cell granules, while Martineau and Hamonic reported in the same year their alleged success in reproducing the syphilitic lesions in pigs and monkeys with their bouillon cultures of cocci and bacteria. In 1884, the well-known discovery of Lustgarten was heralded from Weigert's laboratory. He demonstrated the presence of a bacillus in certain syphilitic products which resembled the tubercle bacillus discovered by Koch in 1882. The finding was confirmed by a number of reputable bacteriologists, among whom were Doutrelepont, Schütze, Giletti, de Giacomi, Gottstein, Babes and Baumgarten. It soon met with severe criticism, however, by Alvarez, Tavel, Klemperer, Matterstock, Bitter and many others, who not only failed to find this bacillus in the sections of the syphilitic tissues, but found it in other diseases as well as in normal smegma. Thus the discovery of Lustgarten gradually passed from general interest. In spite of Lustgarten's mistake, a great many investigators went further on to find the real organism of syphilis. Most of them described the cocci-like granules in the blood or lesions of syphilitics and claimed to have obtained pure cultures of so-called syphilis bacillus or syphilis coccus from the blood or glands. Van Niessen still asserts that a polymorphous bacillus which he obtained from the syphilitic blood and named *syphilomyces* is the cause of syphilis. He maintains that *Spirochæta pallida* is only one of the life cycles of this bacillus, although Hoffmann points out that there is absolutely no resemblance between the *pallida* and Van Niessen's bacillus in any stage of development. Similar bacilli were reported to be present in the syphilitic blood, by de Lisle and Jullien, Paulsen, Joseph and Piorkowski, but they are now considered to be due to external contamination. There are also certain investigators who claim to have found protozoa in syphilitic products, but their findings were soon disproved as mostly due to the artefact or decomposition products.

THE DISCOVERY OF SPIROCHÆTA PALLIDA

The new era in the experimental research in syphilis began with the successful transmission of syphilitic lesions to higher apes by Metchnikoff and Roux in 1903. This opened up the field by furnishing a means of studying the nature of the causative agent of syphilis outside of human subjects. Thus Klingmüller and Baermann determined that the virus of syphilis does not pass through filters and does not, therefore, belong to an ultramicroscopic organism. The finding was confirmed by Metchnikoff. These two findings, the transmissibility to certain animals, and non-filtrability through porcelain bougies of the syphilitic virus, have exerted a great influence in enticing competent microscopists and biologists to attempt anew a thorough search for the virus, for they have learned that the organism lies within the limit of visibility.

It was not, however, until 1905 that an organism which was destined to gain universal recognition as the long-sought virus of syphilis, was viewed for the first time by Fritz Schaudinn in a joint investigation with Erich Hoffmann. Schaudinn found in the aspirated juice from the swollen inguinal glands of a syphilitic a faintly visible, extremely delicate small spirochete in fresh preparations. The organism, stained faintly with Giemsa's solution, was paler than any spirochete known

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* From the Laboratory of The Rockefeller Institute for Medical Research.

* Fenger-Senn Memorial Address, delivered before the Chicago Medical Society, March 13, 1912.

to him at that time; hence he gave it the name of *Spirochæta pallida*,* renaming it *Treponema pallidum* in the same year. Schaudinn and Hoffmann examined a series of syphilitic and non-syphilitic patients and found that the *pallida* was almost always present in syphilitic lesions, but never in other diseases. They have described at the same time another, quite larger, irregularly and less curved spirochete which was found in non-syphilitic as well as syphilitic lesions on genitals. The name of *Spirochæta refringens* was given to this form. The discovery was soon confirmed with amazing rapidity by different investigators who demonstrated the *pallida* in various lesions, blood-vessels, internal organs, blood, spermatozoa, ova, and other body-fluids of syphilitic patients. Through the investigations of Buschke, Fischer, Levaditi, Salmon, Hoffmann, Paschen, Bertarelli, Volpino, Babes, Panea, Flexner, and many others, the *pallida* was demonstrated in abundant number in different organs and tissues of syphilitic children and fetuses. The organism was also found by Metchnikoff and Roux in the lesions in monkeys produced directly with human virus or indirectly through transmission of the virus from animal to animal. Soon afterward Truffi, Bertarelli, E. Hoffmann, Uhlenhuth, Mulzer, Nichols and others succeeded in infecting rabbits, guinea-pigs and lower monkeys, and have constantly found the *pallida* in the lesions. The transmissions of the *pallida* from man to monkey, monkey to rabbit, and rabbit to monkey, for many generations, has been carried on by Hoffmann and Nichols. The testicles of rabbits were especially suitable for purifying the *pallida* from the associating organisms, as the latter disappear completely after passing one generation, through the rabbit's testicle. Uhlenhuth and Mulzer were able to produce generalized syphilis in young rabbits by the intracardial inoculation with testicular strains of the *pallida*.

Thus *Spirochæta pallida*, Schaudinn, fulfilled almost all the requirements laid down by Koch before being accepted as the causative agent of syphilis. The only missing link was that a pure culture of this organism should be able to produce the pathologic changes in experimental animals similar to those found in human syphilis.

CULTIVATION OF SPIROCHÆTA PALLIDA

1. *Mixed Cultures.* — Many investigators failed to obtain any growth of the *pallida* outside of the animal body. In 1907, Levaditi, Yamanouchi and others, found that the *pallida* remain motile in a colloidin sac filled with monkey serum and kept for many weeks in the peritoneal cavity of a monkey. The impure cultures thus obtained were non-virulent for any animal. In 1909, Schereschewsky reported that an impure culture of *pallida* may be obtained by inserting a piece of chancre into a high-layer tube of gelatinized horse serum. The success was not uniform, and he says that when the original material contained a virulent strain for rabbits or monkeys no growth in his horse serum was observed. Inversely, an impure growth may take place when the material used was non-virulent. All his cultures were non-pathogenic for monkeys and rabbits. It is difficult to decide whether his impure cultures contained an avirulent *pallida* or a certain spirochete indistinguishable from the *pallida*, because in a culture, morphology alone is no criterion for identifying the *pallida*. In 1910, Brucknet and Galasesco reported a successful production of syphilitic orchitis in rabbits by means of an impure culture in gelatinized ascitic fluid in which the original syphilitic tissue was still present. Sowade, in 1911, reported a successful generalization of syphilis in a rabbit through the intracardiac inoculation of an impure culture in gelatinized horse serum. In this case the rabbit showed scattered lesions over the body in which the *pallida* were found.

2. *Pure Cultures.*—There are up to the present date three investigators who claim to have succeeded in cultivating *Spirochæta pallida* in pure state, Mühlens, W. H. Hoffmann, and myself. Mühlens published his first article in 1909 and the second in 1910, asserting that he obtained one strain of the *pallida* in pure culture. W. H. Hoffmann, who has assisted Mühlens, continued to work alone a little longer and reported, in 1911, that he was able to isolate five more strains of the same organism as Mühlens. The method of cultivation consisted of the use of Schereschewsky's horse serum for obtaining an impure culture and then purifying it in a horse-serum agar (deep layer). The claim of Mühlens that his spirochete was a *pallida* was based entirely on the similarity of the morphology between the cultivated organism and the *pallida*, because no pathogenicity whatever was possessed by his culture. In his first report, W. H. Hoffmann mentions, also, that none of the strains of the organism cultivated by him was pathogenic. Later, in a brief report, this investigator claims to have produced an orchitis in rabbit by means of one of his cultures. He ascribes his earlier failure to accomplish this to the use of an insufficient quantity of culture. The pathologic changes produced by his culture as described by him were by no means convincing as a syphilitic nature. He succeeded in cultivating back his spirochete which, like all the other cultures of these two workers, developed a penetrating putrefactive odor. In regard to the differentiation of the organism isolated by them, both authors make very little mention, saying that the general characteristics of the culture are indistinguishable from those of *Spirochæta dentium* cultivated by Mühlens in 1906. Like the *dentium*, the spirochete of Mühlens and W. H. Hoffmann grows in a horse-serum agar without the addition of any fresh tissue, and produces a strong putrefactive odor. The differences which their spirochete presents in contrast to the *pallida* isolated by me, as will be presently described, are striking. Furthermore, as will be seen later on, there is absolutely no difference between *Treponema microdentium* isolated by me and the so-called *pallida* of these two authors.

Since 1910 I have been working on the cultivation of *Spirochæta pallida* and have succeeded in isolating six different strains from the orchitis material of rabbits and seven directly from chancres, condylomata and skin papules of human subjects. The methods used are different, according to whether the *pallida* is to be cultivated from the orchitis of rabbits or directly from man. For the former, which contains the *pallida* in almost pure state, a fluid medium is preferred. A serum-water containing a piece of sterile fresh tissue is inoculated with the emulsion of the spirochete and cultivated under most strictly anaerobic conditions. After the first generation of the growth is obtained, it is more and more acclimated to the artificial cultural conditions by passing repeated subcultures in the fluid media. Then the *pallida* is transferred to a solid medium containing the suitable nutriments and fresh tissues. If the culture is impure, it can be purified in solid media by a special technic.

* For the mere traditional reason I have employed this designation in the present article. When the subject is considered from the systematic or zoologic point of view, the term *Treponema pallidum* is preferred, as has been my custom in other papers.

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On the other hand, a fluid medium is unsuitable for obtaining a growth of the spirochete when the human material is utilized, because the medium undergoes, through the growth of the accompanying bacteria, such changes that it renders the medium unfit for the growth of *pallida*. For this reason, I have resorted to the use of a solid medium consisting of one part of ascitic fluid and two parts of weakly alkaline agar with a piece of sterile fresh tissue at the bottom. The percentage of success depends on the suitableness of the medium which can vary considerably with different specimens of ascitic fluids used, and also on the adaptability on the part of the strains of the *pallida*. The method of purification and other minor technical points will be found in my previous papers.

The six orchitis strains and seven human strains of the *pallida* thus obtained are identical in morphologic and cultural characteristics. They grow slowly and steadily around the tissues and form very faint diffuse undefined colonies extending gradually. The spirochete is strictly anaerobic and requires the presence of a fresh sterile tissue for development. It does not attack the protein constituents of the tissue or serum, nor does it produce an odor in growth in any medium. The cultivated *pallida* is less actively motile, but the variety of the movements is characteristic. Under unfavorable cultural conditions its morphology becomes less typical. The growth continues for several weeks. It has been noticed that the *pallida* strains isolated from the rabbit's orchitis grow more luxuriantly in a medium containing rabbit serum, while those from human chancres prefer the ascitic fluid agar. It appears as if the passage of the *pallida* through the rabbit's body modified the biologic property of this organism.

In regard to the pathogenicity, I have succeeded in producing typical orchitis in several rabbits by means of pure cultures of the orchitis strains. With the human strains I was able to produce the initial lesions on the skin of *Macacus rhesus* and *Cercopithecus callitrichus*. The Wassermann reaction developed in these monkeys after the appearance of the induration, several weeks after the inoculation.

The above identification of my cultivated *pallida* strains seems to amply justify my assertion, but I am now in the position to offer further evidences of its identity by means of the immunity and allergic reactions. For a fuller discussion, I will return to this topic later, but a brief statement is made here.

Several series of experiments[1] on rabbits were conducted with the purpose of producing the specific antibodies for the cultivated *pallida* and the tissue *pallida* (rabbit's orchitis). After a prolonged immunization, the serums of these rabbits were tested for the antibodies by means of a specific complement fixation test using the spirochete extract as antigen. It was found that the immune serums prepared with the cultivated *pallida* fix the complement with the antigen derived from the *pallida* of rabbit's orchitis as well as from the culture. The immune serums prepared with the orchitis tissue *pallida* reacted also with both antigens. On the other hand, both sets of the immune serums gave negative reactions with the antigens made of the pure cultures of mouth spirochetes or *Spirochæta refringens*. The mutually interchangeable reaction between the cultivated *pallida* and the tissue *pallida* establishes completely the identity of the two. It is also found that the rabbits sensitized with the orchitis *pallida* by repeated inoculation show the allergic skin reaction to the cultivated *pallida* extract (luetin) as well as to the tissue *pallida* extract. They do not react to the extracts of the *dentium* or *refringens*. This phenomenon adds further evidence that the spirochete cultivated and claimed by me to be the *pallida* is identical with the *pallida* found in the syphilitic tissues.

1. Partly aided by Dr. J. Bronfenbrenner.

DIFFERENTIATION OF SPIROCHÆTA PALLIDA AND CERTAIN MORPHOLOGICALLY AND CULTURALLY ALLIED SPECIES

The identification of a microorganism depends on a series of characteristics possessed by each organism. As the deviation of one member from the closely related members of the same family is only gradual and partial, it becomes important to discover as many individual characteristics as possible of each of them. The differentiation may thus become possible by pointing out one or more differences between the two, in spite of the presence of numerous other properties in common. It may happen that two organisms possess almost indistinguishable morphology, but grow differently, while their morpohology may be quite different, yet present similar appearance in growth. Every pathologist knows that the morphologic variations can exist to a considerable extent among different strains of the same organism and offer confusion when one attempts to differentiate it from the morphologic side. Fortunately, we are now in possession of certain indirect methods of identification in such cases, and this often carries more conviction than the most of the other evidences. These indirect methods are the phenomena of immunity and anaphylaxis. While the immunity phenomena are liable to be deprived of their value of identification through occasional group reactions among allied species, yet when it occurs that there is none, it brings identification beyond any dispute. The same is true of the allergy. Another method of identification is applicable only when the organism is pathogenic for certain animals. By the nature of pathogenicity, an organism can be differentiated from the others. But, there is also a difficulty in utilizing this procedure for a definite differentiation, as certain strains of the same pathogenic organism may become attenuated or even avirulent during the cultivation. Hence the absence of pathogenicity in this instance constitutes no evidence that the organism is another species.

For the identification of the *pallida* cultivated by me, the above were taken into consideration.

It may be mentioned that I have succeeded in cultivating *Spirochæta macrodentium*, *Spirochæta microdentium* and *Spirochæta refringens* in pure state and employed them for comparative studies with *Spirochæta pallida*.

Spirochæta pallida is indistinguishable from *Spirochæta microdentium* by the morphologic characteristics, but is well differentiated from the latter by the requirement of tissue for growth, the absence of a putrefactive odor, the pathogenic property, the positive complement fixation with the antiserum produced in animals by immunizing them with pure *pallida* extract (such as the syphilitic orchitis of rabbit), and its capability of inciting an allergic reaction in syphilitic patients. The *macrodentium* and *refringens* can be easily differentiated from the *pallida* by their morphology alone, although they behave quite differently in other respects as well.

Now, turning our attention to the spirochetes cultivated and claimed by Mühlens and W. H. Hoffmann to be the *pallida*, it becomes clear that their spirochete corresponds with *Spirochæta microdentium* in every

principal characteristic, and disagrees with the *pallida* obtained by me. It appears quite strange that neither Mühlens nor W. H. Hoffmann has isolated even once a spirochete identical with my strains of the *pallida*, while W. H. Hoffmann states that he obtained his variety, which doubtless belongs to the *microdentium*, from five different lesions. Mühlens, it may be recalled, obtained this variety only once out of nearly eighty different specimens of syphilitic tissues. Whether the *microdentium* is more frequently associated in syphilitic lesions in Germany, it is difficult to say, but so far as my personal experience with numerous chancres and condylomata is concerned, I have never isolated a single strain of the *microdentium* from a syphilitic lesion outside of the oral cavity. It was for the purpose of avoiding such a confusion between the *microdentium* and the *pallida* that I had taken the trouble to use the rabbit's orchitis for cultivation in my first series of work, and later when cultivating the *pallida* directly from human syphilitic tissues, I never utilized the lesions in the mouth.

In identifying a cultivated spirochete with *Spirochæta pallida* the following points must be fulfilled:

1. The spirochete must be morphologically correct.
2. It must not produce a putrefactive odor.

tures. I was fortunate in obtaining ten different strains of the *pallida* in the testicles of rabbits and in studying them side by side. During my observations, extending over a period of over one year, I was struck with certain variations in their morphology and pathogenicity. Seven out of ten strains had the typical morphologic features and produced the diffuse orchitis in rabbits within three to four weeks, and progressed for about six to seven weeks. Then the orchitis usually retrogressed. Two strains were somewhat heavier than the average, and produced very hard nodules of cartilaginous consistency within eight weeks. The lesions increased in size very slowly, and remained for many weeks. The lesions on section showed much mucin and were difficult to crush. One strain, derived from a case of malignant syphilis, was somewhat thinner and attained a greater length than the average. It produced a soft diffuse swelling of the testicle within ten to fourteen days, progressing for several weeks. These characteristics were maintained unchanged for the entire period of observation.

Among the pure cultures I have observed similar variations in morphology. Of thirteen strains, eight show the typical morphologic features, two thicker and three thinner forms. The morphology of the thinner

TABLE 1.—POINTS OF DIFFERENTIATION OF SPIROCHETES

Varieties of Spirochetes	Requirement for Tissue	Production of Putrefaction Odor	Appearance of Growth	Pathogenicity	Dimension (Av.)	Curves (Average)	Movements	Complement Fixation with the Pallida Immune Serum	Allergic Reaction on Syphilitic Patients
Spirochæta * *pallida*.....	+	—	Diffuse, faint.	+	0.2-0.3 μ x 6-18 μ	Regular, deep. 4-16	Rotation.....	+	+
Spirochæta * *microdentium*.....	—	+	Denser, more discrete.	—	0.2-0.25 μ x 5-18 μ	Regular, fairly deep. 4-20	Rotation.....	—	—
Spirochæta * *macrodentium*.....	+	—	Diffuse, faint.	—	0.25-0.4 μ x 6-18 μ	Less regular. 3-14	Vibratory and rotation.	—	—
Spirochæta * *refringens*.....	—	—	Fairly well defined, faint.	—	0.5-0.75 μ x 6-20 μ	Irregular. 3-8	Wavy and serpentine.	—	—

* They all belong to genus *Treponema*.

3. It requires the addition of fresh tissue for growth.
4. Its extractor emulsion must bind complement with the immune serum (rabbit is preferred) produced by means of repeated injections of the tissue *pallida* (to be obtained from syphilitic orchitis of rabbits).
5. Its extract or emulsion must give an allergic reaction in certain cases of syphilis.
6. It should be pathogenic. The last requirement is highly important, but one cannot exclude the possibility of the organism still being the *pallida*, even if it is avirulent, as long as it fulfils the other five points, because it is not impossible that a strain of *pallida* may become attenuated in cultivation.

MORPHOLOGIC AND PATHOGENIC VARIATIONS IN SPIROCHÆTA PALLIDA

Hitherto but little attention has been paid to certain morphologic and pathogenic variations that exist among different strains of *Spirochæta pallida*. It is true that such variations can hardly be brought out through the usual microscopic examinations of different specimens of syphilitic material. It requires a careful comparative study on a large number of strains either carried through the animal body for many generations, or in pure cultype resembles that of *Spirochæta microdentium*, and it is almost impossible to differentiate under the microscope. Nevertheless, the other characteristics identify it as the *pallida*. It may be mentioned that different types of the *pallida* can be present together in one lesion, as I was able to obtain a thicker and a thinner form with the average strain.

The above seems to be a highly important distinction, and, if in the study of a still larger number of specimens of the *pallida*, it is maintained, it will throw light on certain important clinical features of the human syphilitic disease.

ALLERGY IN SYPHILIS

The peculiar change of reactivity in the system of individuals infected for some time with certain pathogenic microorganisms, as characterized by a hypersensitiveness to the incorporation of the constituents of the latter in a specific sense, has been recognized for a long time. Thus Koch's tuberculin test, von Pirquet's cutaneous test, Calmette-Wolff-Eisner's ophthalmic test in tuberculosis, the malein test in glanders, and similar reactions in various chronic or acute infectious diseases, have been discovered and become useful aids in diag-

nosis. Recent studies on anaphylaxis with various proteids, as inaugurated by Theobald Smith and thoroughly investigated by Richet, Otto, Besredka, Rosenau, Anderson, von Pirquet, Shick, Friedberger, Kraus, Dörr, Auer, Lewis, Gay, Southard, Pfeiffer, Wells, and others, clearly established the specific nature of the phenomenon. The most interesting feature of the anaphylactic phenomenon lies in the fact that the hypersensitiveness to a foreign protein develops only when a certain period of cessation of the introduction of the substance is allowed to elapse before the next injection, which then produces the well-known symptoms. The continuation of inoculation at regular short intervals does not confer on the recipient of the foreign substance any anaphylaxis during this period. It is, therefore, more likely to develop an anaphylactic condition in those patients who are infected with certain organisms which remain in their body for a long period, during which their activity undergoes fluctuations either spontaneously, possibly partly owing to the production of certain antagonistic substances by the infected hosts, and partly owing to the nature of the infecting microorganism, or fluctuations through the usual therapeutic interference. The clinical course of syphilis indicates that the infecting agent, *Spirochæta pallida*, fulfils all the requirements that lead to the development of an anaphylactic condition in syphilitic patients. Theoretically one should not expect this condition to appear as long as the activity of the *pallida* is maintained at its maximum, as is the case with the early period of infection. But one can reasonably expect the appearance of this phenomenon when the activity of the organism is abated through the gradually acquired defensive power of the hosts, or under an effective therapeutic control. Thus we may find this condition to be present in later stages of the disease. Likewise, the cases of late hereditary syphilis would behave similarly. It will be seen later that the above theoretical points are well borne out by the practical results to be reported.

Syphilis is a chronic infectious disease, and presents many difficulties in diagnosis. During its very early period, it is principally a disease of dermatologic, genitourinary, and laryngologic fields. There the clinical appearance, demonstration of *Spirochæta pallida* and the Wassermann reaction usually settle the diagnosis. On the other hand, as soon as it enters its chronic course, it manifests most diverse and often obscure symptoms. The direct demonstration of the *pallida* becomes laborious and often impossible, the serum reaction less frequent, and the clinical aspect less decisive. A great many cases of the disease at this period now pass into the fields of medicine, surgery, ophthalmology, neurology, and psychiatry. Here the detection of the allergic condition will doubtless aid in deciding the diagnosis of dubious cases.

Since the discovery of *Spirochæta pallida*, various investigators have attempted to introduce a specific cutaneous reaction based on the allergy in syphilis. Thus, Meirosky, Wolff-Eisner, Munk, Tedeschi, Nobl, Ciuffo, Nicolas-Favre-Gauthier, Neisser-Bruck, Jadassohn and Fontana carried out a series of experiments by means of an extract obtained from syphilitic tissues containing the *pallida*. They were much handicapped by not having a pure *pallida* extract for such purposes. One can imagine the way in which an extract containing various bacteria besides the *pallida* would react. With such an impure antigen, some of them obtained quite favorable results, while others were unable to come to any conclusive result.

After obtaining the pure cultures of several strains of the *pallida*, in 1910-11, I commenced my experimental work on rabbits with the purpose of ascertaining if these animals could not be made allergic to the extract of pure *pallida*. By repeated intravenous injections of the *pallida* antigen into the rabbits for several months and then giving them a month's rest, I tested them with the extract, which was termed "luetin," given intradermally. A proper control was provided. They all reacted to the luetin with marked inflammation, some leading to pustulation in several days. No normal rabbit reacted. While I was still working with the animals, Professor Welch suggested that I make the test on human subjects. Through his encouragement, I commenced the work at once at different dispensaries and hospitals with the cooperation of the physicians in charge.

TABLE 2.—LUETIN REACTION IN VARIOUS SYPHILITIC CONDITIONS AND IN CONTROLS

	Primary Syphilis		Secondary Syphilis				Tertiary Syphilis				Congenital Syphilis				Cerebrospinal Syphilis		Latent Syphilis		Controls			
	Symptoms Present		Symptoms Present		Symptoms Absent		Symptoms Present		Symptoms Absent		Under 1 Year		Late Cases		Symptoms Present				Normal Individuals		Non-Syphilitic Cases	
Luetin reaction	+	—	+	—	+	—	+	—	+	—	+	—	+	—	+	—	+	—	+	—	+	—
No antisyphilitic treatment.	..	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24	6	..	50	..	200
Slight mercurial treatment.	1	12	2	25	..	..	12	..	..	..	5	18	..	..	..	..	..	..	..	..	..	..
Regular mercurial treatment.	..	..	..	..	14	3	51	..	29	1	1	3	15	1	5	5	..	..	..	..	..	..
Salvarsan and mercurial treatment.	..	..	1	..	42	12	..	..	22	3	..	..	9	..	..	..	..	..	..	..	..	..
	1	25	3	25	56	15	43	0	51	4	6	21	24	1	5	5	24	6	0	50	0	200
	26		99				98				52				10		30		250			
315																						

My series comprised several hundred cases, including syphilis, parasyphilis, non-syphilitic diseases, and normal individuals.

In the series just referred to, the luetin was made from only two strains of pure cultures of the *pallida*. Since then, I have been preparing it with at least six different strains, thus securing a polyvalent antigen. The luetin has been recently distributed to certain hospitals in this country and Europe and their results are not reported as yet. The first report on this subject published is by Cohen, who is applying the test to the

ophthalmologic conditions. His results show that the reaction is specific and offers much aid in diagnosis where either the seroreaction or the clinical symptoms are indecisive. The second report is by Orleman-Robinson, who applied the reaction to dermatologic conditions at several skin clinics in New York. The results of this investigator also confirm the specificity. The reaction was positive in all tertiary and hereditary cases, and absent in the primary and untreated secondary syphilis. It was not present in a large number of skin cases, including psoriasis, epithelioma, acne vulgaris, erythema multiformis, urticaria, alopecia areata, trichophytosis, erythema toxicum, bromid eruption, sycosis, scabies, pityriasis rosea, tinea versicolor, eczema, ulcus cruris, Darier's disease, eczema seborrheicum, and also pulmonary tuberculosis. Both investigators did their work at their clinics under the joint observations of their colleagues.

In certain cases of tertiary and hereditary syphilis, they have observed the so-called *Umstimmung* of Neisser, in which the control injection also reacted more or less markedly. This confirms my earlier observations.

Regarding the varieties of the luetin reaction, I have made the following types:

DESCRIPTION OF THE REACTIONS

Normal or Negative Reactions.—After applying the emulsions, both luetin and control, to about fifty normal individuals, I was able to determine the variations and limitations of the reactions that follow intradermic administration in the normal skin of a man. In the majority of normal persons, there appears, after twenty-four hours, a small erythematous area at and around the point of injection. No pain or itching sensation is experienced. This reaction gradually recedes within forty-eight hours and leaves no induration. In certain individuals, the reaction may reach a stage of small papule formation after twenty-four to forty-eight hours, after which and within seventy-two hours it commences to subside. No induration is left behind, although occasionally slight yellowish pigmentation may result from mild ecchymosis.

Positive Reactions.—According to the manner and intensity with which the skin of syphilitics responds to the introduction of luetin, one may distinguish the following varieties of effects:

A. Papular Form: A large, raised, reddish, indurated papule, usually from 5 to 10 mm. in diameter, makes its appearance in twenty-four to forty-eight hours. The papule may be surrounded by a diffuse zone of redness and show marked telangiectasis. The dimensions and the degree of induration slowly increase during the following three or four days, after which the inflammatory processes begin to recede. The color of the papule gradually becomes dark bluish-red. The induration disappears within one week, except in certain instances in which a trace of the reaction may persist for a longer period. This latter effect is usually seen among patients with secondary syphilis under regular mercurial treatment in whom there are no manifest lesions at the time of making the skin test. Patients with congenital syphilis also show this reaction in early period of life.

B. Pustular Form: The beginning and course of this reaction resemble the papular form until about the fourth day, when the inflammatory processes commence to progress. The surface of the indurated, round papule becomes mildly edematous, and multiple miliary vesicles occasionally form. At the same time, a beginning central softening of the papule can be seen. Within the next twenty-four hours, the papule changes into a vesicle filled at first with a semi-opaque serum that later becomes definitely purulent. Soon after this, the pustule ruptures spontaneously or after slight friction or pressure. The margin of the broken pustule remains indurated, while the defect caused by the escape of the pustular content becomes quickly covered by a crust that falls off within a few days. About this time the induration usually disappears, leaving almost no scar after healing. There is a wide range of variation in the degree of intensity of the reaction described in different cases, as some show rather small pustules, while in others the pustule is much larger. This reaction was found almost constantly in patients with tertiary or late hereditary syphilis.

C. Torpid Form: In rare instances, the injection-sites fade away to almost invisible points within three or four days, so that they may be passed over as negative reactions. But sometimes these spots suddenly light up again after ten days, or even longer, and progress to small pustular formation. The course of this pustule is similar to that described for the preceding form.

This form of reaction has been observed in a case of primary syphilis, in one of hereditary syphilis, and in two cases of secondary syphilis, all being under mercurial treatment.

Neither in syphilitics nor in parasyphilitics did a marked constitutional effect follow the intradermic inoculation of the luetin. In most positive cases, a slight rise in temperature took place lasting for one day. In three tertiary cases and in one hereditary case, however, general malaise, loss of appetite and diarrhea were noted.

The final estimation of the luetin test awaits future investigations by a large number of observers. In the meanwhile, I consider it fairly accurate to state that in this reaction one has a specific test for syphilis. Its more constant presence in the late stage of syphilis than the serum reaction may be of special advantage to those who have to deal with this class of cases.

From my limited observations, it appears that the allergic condition of skin in syphilitic patients persists as long as the infecting agent still survives somewhere in the body, and it requires a most energetic treatment to remove it. Should the destruction of the *pallida* be complete, the allergy must also cease to exist beyond a certain length of time. In animal experiments the luetin reaction no longer appeared after a period of several months. In several instances of human syphilis, in which the symptoms and serum reaction had disappeared under the treatment with salvarsan, the subjects failed to respond to luetin reaction after from eight to twelve months, and the patients still remain in excellent health. It will be of great importance if the luetin reaction can be employed for determining a cure. I have, however, seen cases in which the disease persists in spite of the treatment, and the patients do not give a positive luetin reaction. This class of cases shows undoubtedly an unfavorable prognosis.

SPIROCHÆTA PALLIDA AND THE WASSERMANN REACTION

Although the discovery of the Wassermann reaction was due to the assumption that a syphilitic serum containing the specific antibodies fixes the complement when mixed with an extract containing *Spirochæta pallida*, the real cause of this interesting phenomenon is now generally known not to be of the nature of a specific complement fixation brought about through the com-

bination of the syphilitic antigen (*Spirochæta pallida*) and antibodies, in the strict sense of the term. The discovery of Landsteiner, Müller and Pötzl and Porges and Meier, that an alcoholic extract of syphilitic as well as normal tissues yields practically the same results as an aqueous extract of a syphilitic organ, originally recommended by Wassermann and Bruck, and the fact that the Wassermann reaction occurs also in non-syphilitic diseases (leprosy, frambesia, malaria, etc.) as observed and confirmed by later investigators, made the original antigen-antibody view untenable. Further, the extensive series of experiments of myself, later with Bronfenbrenner, conclusively proved that the active principles of

In order to settle the above question, several series of experiments were carried out on repeated occasions in regard to the following points:

1. Can syphilitic serums giving the positive Wassermann reaction by means of the lipoidal "antigen" also bind complement when the lipoids are replaced by the extract or emulsion of *Spirochæta pallida?*

2. Is it possible to intensify the ordinary Wassermann reaction in syphilitic serums by adding the extract or emulsion of the *pallida?*

The second problem was set up through the supposition that certain syphilitic serums giving weak or negative reactions with the lipoidal "antigen," may nevertheless contain sufficient antibodies which, while on account of the absence or insufficiency of the *pallida* substance are only partially detected or remain unrevealed, may be brought into evidence by the addition of the real antigen. This assumption originates from the conception of Citron, who considers that the lipoidal "antigen" is merely an intermediator to bring about the combination of the antibody and real antigen in the syphilitic serums where they are supposed to be existing side by side without entering combination until the lipoids are added.

In deciding the first point, I have prepared the aqueous extract and emulsion of *Spirochæta pallida* derived from two different modes of cultivation, namely,

TABLE 3.—THE ANTIGENS USED FOR THE FIXATION TESTS

	Syphilitic and Non-Syphilitic Serums Used for the Complement Fixation Tests	I Acetone-Insoluble Tissue Lipoids (Wassermann Reaction or Lipotropic Fixation) ("Antibody")	II Pallida Emulsion from Rabbit's Syphilitic Orchitis	III Control Emulsion from Normal Rabbits' Testicles.	IV Pallida Emulsion from Pure Cultures	V Control Emulsion from Uninoculated Culture Media	VI No Antigen
Syphilitic Cases	Primary syphilis, untreated	± 1 unit	—	—	—	—	—
	Primary syphilis, untreated	± 3 units	—	—	—	—	—
	Primary syphilis, untreated	+ 2 units	—	—	—	—	—
	Primary syphilis, untreated	+ 1 unit	—	—	—	—	—
	Primary syphilis, untreated	+ 5 units	+	+	—	—	—
	Secondary syphilis, slight treatment, general rash	{ + 2 units	{ +	{ +	—	—	—
	Secondary syphilis, slight treatment, general rash, fading	+ 10 units	+	+	—	—	—
	Secondary syphilis, moderate treatment, manifest	+ 3 units	+	+	—	—	—
	Secondary syphilis, moderate treatment, manifest	± 2 units	±	±	—	—	—
	Secondary syphilis, salvarsan, no symptoms	{ + 1 unit	+	±	+	—	—
	Secondary syphilis, salvarsan, no symptoms	{ ± 0.5 unit	±	±	+	—	—
	Tertiary syphilis, no recent treatment, manifest	+ 4 units	+	±	{ +	—	—
	Tertiary syphilis, salvarsan and Hg, no symptoms	± 4 units	±	±	{ +	—	—
	Tertiary syphilis, salvarsan and Hg, symptoms clearing	+ 2 units	±	—	{ +	—	—
	Tertiary syphilis, Hg treatment, manifest	+ 1 unit	—	—	—	—	—
	Tertiary syphilis, Hg treatment, manifest	± { 0.5 unit	—	—	—	—	—
	Late hereditary syphilis, Hg treatment, manifest	+ 2 units	±	{ ±	{ +	—	—
	Late hereditary syphilis, Hg treatment, manifest	± 4 units	±	+	{ +	—	—
	Late hereditary syphilis, Hg treatment, manifest	+ 8 units	+	+	—	—	—
	Late hereditary syphilis, Hg treatment, manifest	—	±	—	±	—	—
Non-Syphilitic Cases	Gonorrhea	—	—	—	—	—	—
	Tuberculosis	—	—	—	—	—	—
	Chancroid	—	—	—	—	—	—
	Carcinoma	—	—	—	—	—	—
	Dementia præcox	—	—	—	—	—	—
	Leprosy (tuberose type)	+ 5 units	+	+	—	—	—
	Leprosy (mixed type)	+ 3 units	+	+	—	—	—
Experimental Syphilis and Controls	Rabbit, syphilitic orchitis, six weeks' duration	+ 1 unit	—	—	—	—	—
	Rabbit, syphilitic orchitis, six weeks' duration	+ 1 unit	—	—	—	—	—
	Rabbit, syphilitic orchitis, six weeks' duration	{ + 2 units	{ +	{ +	—	—	—
	Rabbit, syphilitic orchitis, six weeks' duration	+ 1 unit	—	—	—	—	—
	Rabbit, syphilitic orchitis, six weeks' duration	+ 1 unit	—	—	—	—	—
	Rabbit, normal	—	—	—	—	—	—
	Rabbit, normal	—	—	—	—	—	—
	Rabbit, normal	—	—	—	—	—	—
	Rabbit, normal	—	—	—	—	—	—
	Rabbit, normal	—	—	—	—	—	—

Explanation: + = positive; { + = weakly positive; ± = doubtful; — = negative reaction.

the so-called antigens in the Wassermann reaction are present in the lipoidal substances of the tissues, irrespective of whether they are derived from syphilitic or non-syphilitic human subjects or animals.

In spite of these facts, certain investigators still adhere to the original view without, however, any definite evidence in favor of such an assumption. Since the causative organism, *Spirochæta pallida*, has now been cultivated in pure state and identified through its pathogenicity and other biologic properties, such as the capability of inciting the Wassermann reaction in experimental animals, it is now possible to find out by exact experiments to what extent *Spirochæta pallida* plays the rôle of the so-called antigen in the Wassermann reaction.

one in the testicles of rabbits and the other in artificial culture media. Both materials were pure and contained an enormous quantity of *Spirochæta pallida*. In making up the extract I have employed several strains of the *pallida* in order to obtain a polyvalent antigen. In case of syphilitic orchitis of rabbits, the indurated testicles of each strain were removed from the animals (under usual aseptic precaution), and these different strains were put together in a sealable porcelain jar for grinding by means of marbles in a shaking-machine. An adequate quantity of sterile physiologic salt solution was added before the grinding. The disintegration of the *pallida* was almost complete after six hours. The emulsion thus obtained was then carefully transferred to a sterile bottle, heated to 60 C for thirty minutes and 0.4 per cent. phenol (carbolic acid) was added. This was used as the antigen. For the control a similar extract with normal rabbit's testicles was prepared.

For making the antigen from pure cultures of the *pallida*, the technic used was identical with the foregoing. The control extract was prepared with inoculated media. The culture medium consisted of one part of ascitic fluid and two parts of a weakly alkaline agar to which a piece of fresh sterile rabbit's kidney was added. For the antigen only the colonies of the *pallida* were employed, the tissue (kidney) being previously removed.

After determining the anticomplementary titer of each emulsion, I have tested a large number of syphilitic serums from human subjects and also from rabbits with syphilitic orchitis. Non-syphilitic serums both of man and rabbits were used as controls. Throughout the entire series of experiments, the antihuman hemolytic system (Noguchi) was used. The serums were inactivated at 55 C. for thirty minutes. This precaution is absolutely necessary as the antigens contain various proteids capable of causing a proteotropic fixation with unheated serums.

In order to know the relation quantitatively between the Wassermann reaction produced by the lipoidal "antigen" and the fixation by the *pallida* extract as antigen, I have titrated the positive serums for their fixing-power simultaneously with the lipoidal and *pallida* antigens.

The Wassermann reaction is present in most of the syphilitic cases here studied and also in two cases of tuberous and mixed type of leprosy. It is more pronounced in untreated early cases and in hereditary cases than in the treated cases. It is present in tertiary cases in a lower percentage. On the other hand, a positive reaction was obtained with the *pallida* extracts in certain cases with weak or negative Wassermann reactions. These occurred, however, only when the patients were under treatment or had been syphilized many years ago without being cured. It is also remarkable to notice that in many cases of tertiary syphilis and later hereditary cases, there was a partial fixation, irrespective of the absence or presence of fixation as indicated by the lipoidal antigen. No fixation was obtained with the *pallida* antigen made from pure culture in the case of leprosy, while the extract from syphilitic as well as normal rabbit's testicles gave a positive reaction, due, doubtless, to the lipoidal content of the latter.

These facts may be considered as deciding (1) that the Wassermann reaction is caused by the lipotropic substances, but not by the antibodies which combine specifically with the *pallida* antigen; (2) that the fixation produced by the culture *pallida* antigen with certain syphilitic serums is caused by the specific antibodies contained in the latter and may constitute a specific diagnostic method for syphilis; (3) that the fixation caused by the testicular extracts behaves like the culture *pallida* extract in the majority of cases, but when the serums (syphilitic or leprous) contain abundant lipotropic substances, it may give a Wassermann reaction as well, which is not the case with the culture *pallida* antigen; and finally (4), that in the serum of rabbits with active syphilitic orchitis there is no indication of the presence of a sufficient amount of the antibodies for the *pallida* antigen, although it gives a strong Wassermann reaction. It remains to be seen when and under what conditions the specific antibodies for the *pallida* will most abundantly be formed in syphilitic patients. At all events it is rather remarkable that the amount of the antibodies detectable by the *pallida* antigen in these cases was so small as compared with certain other infectious diseases, in this respect. It is not improbable that those who come under our care belong to a class of individuals with comparatively less resistance to the *pallida* and are incapable of producing sufficient antibodies, while there are many who respond to the infection with more vigorous formation of the antibodies and reduce the infection to a harmless latency or even destroy the *pallida* completely. This latter class of infected persons do not, of course, frequent our clinics. If this is the case, it would be of immense prognostic importance to check a patient from the beginning of infection by the complement fixation test with the *pallida* antigen, thereby determining the resistance of the patient against the disease.

We have in the Wassermann reaction a fair measure of activity of the infecting agent, and now we will have in the *pallida* fixation reaction a gauge for the defensive activity of the infected host.

V. 5
1912

DEMONSTRATIONS

In order to illustrate the foregoing address with practical demonstrations, I have exhibited the macroscopic and microscopic (dark field) specimens of *Spirochæta pallida*, *microdentium*, *macrodentium* and *refringens* in pure cultures. For the assistance and necessary arrangements for the occasion, I express sincere thanks to Professor Zeit and his assistants.

For the demonstration of the luetin reaction, I am under deep obligation to Dr. W. L. Baum, Dr. B. C. Corbus, Dr. O. Stein and Dr. J. Grinker, who placed a series of syphilitic, parasyphilitic and non-syphilitic cases at my disposal. For the privilege of using the clinic of the Chicago Post-Graduate Medical School during the preparation for the demonstration, my thanks are due to its president, Dr. Emil Ries. It is my pleasant duty to express my gratitude to Dr. Corbus, who has also given me a series of syphilitic cases (private), for which he has been keeping all important data for a number of years. The most important feature of his private cases lies in the fact that the patients were treated by him according to a biologic measure, namely, in regard to the Wassermann reaction. The patients selected by him were those who had been or are still being treated with salvarsan and mercury, and had lost the Wassermann reaction a long or short time ago. As will be seen in the following records, some of the cases with negative Wassermann showed a positive luetin reaction, while others were negative. It seems to be highly important to keep track of the latter group of cases for many years to come, since, in my opinion, these patients with negative, clinical, serologic and allergic findings may belong among the cured patients. This assumption may not, however, apply to those patients who had been treated energetically before the allergic state of the skin was developed (such as cases of primary syphilis), because in these instances the luetin reaction may never be manifest. The prognostic value of the luetin reaction would, therefore, become obvious only in those who had had a generalized syphilis before the treatment.

Below I present brief records of the cases used for the demonstration. The Wassermann reaction in these cases was made by Dr. Corbus.

CASE 1.—N. M., American woman, aged 29, clinic patient of Drs. Baum and Corbus. Present condition: Early secondary lues. Treatment: Mercury rubbings. Wassermann reaction not taken. Luetin mild positive.

CASE 2.—F. B., white man, aged 44, clinic patient of Drs. Baum and Corbus. Present condition: Latent secondaries. Chancre in October, 1910. Treatment: Mercury rubbings and internal. Wassermann positive. Luetin papular distinct (positive).

CASE 3.—J. D., American man, aged 34, clinic patient of Drs. Baum and Corbus. Present condition: Latent secondaries. Infected two years ago. Treatment: Mercury rubbings. Salvarsan injected in oil suspension 0.6 gm. Wassermann positive. Luetin mild positive.

CASE 4.—S. B., American man, aged 26, clinic patient of Drs. Baum and Corbus. Present condition: Recurrent secondaries. Treatment: Mercury rubbings intermittent. Wassermann positive. Luetin distinct papular (positive).

CASE 5.—W. H. W., American man, aged 23, clinic patient of Drs. Baum and Corbus. Present condition: Marked secondaries. Treatment: Salvarsan in oil suspension, February, 1912. Mercury intermittent. Wassermann not made. Luetin distinct papular (positive).

CASE 6.—L. J., colored man, aged 23, clinic patient of Drs. Baum and Corbus. Present condition: Secondaries. Eighteen months since treatment. Treatment: Intravenous injection of salvarsan eight months ago. Mercury rubbings. Wassermann positive. Luetin suppuration on both arms. No difference between control and luetin (*Umstimmung?*).

CASE 7.—C. K., German man, aged 22, clinic patient of Drs. Baum and Corbus. Present condition: Secondary period. No symptoms. Chancre four years ago. Treatment: Mercury rubbings. Salvarsan—intravenous injection May 20, 1911; June 7, 1911; October, 1911; November, 1911. Wassermann not taken. Luetin papular reaction distinct (positive).

CASE 8.—H. K., American man, aged 46, clinic patient of Drs. Baum and Corbus. Present condition: Cerebral gumma. Treatment: Mercury intermittent. Wassermann positive. Luetin large full indurated papule. Typical positive reaction.

CASE 9.—J. S., colored man, aged 34, clinic patient of Drs. Baum and Corbus. Present condition: Probable tertiary. No history. Treatment: Internal about one year. Wassermann positive. Luetin secondary infection. All reactions, both control and luetin.

CASE 10.—A. M., American woman, aged 21, clinic patient of Dr. Stein. Present condition: Congenital lues. Treatment: None at any time. Wassermann negative. Luetin distinct papular (positive).

CASE 11.—C. H., American man, aged 16, clinic patient of Drs. Baum and Corbus. Present condition: Congenital lues. Treatment: Mercury intermittent. Wassermann positive. Luetin pustular reaction (positive). Slight *Umstimmung.*

CASE 12.—W. J. H., American man, aged 42, clinic patient of Dr. Grinker. Present condition: Paresis. Probably infected twenty years ago. Treatment: Neglected. Salvarsan injected intravenously by Dr. Corbus Dec. 1, 1911, and Feb. 5, 1912. Vigorous mercury rubbings between salvarsan injections. Wassermann positive, Nov. 28, 1911. Luetin distinct papular (positive).

CASE 13.—Control case. S. C., colored man, aged 37, clinic patient of Drs. Baum and Corbus. Present condition: No history of initial lesion. No secondaries. Believed to be infected twenty years ago. Treatment: Mercury intermittent. Wassermann negative. Luetin negative.

CASE 14.—C. D., American man, aged 26, private patient of Dr. Corbus, treated after the biologic method. Present condition: Probably cured. Tonsillar chancre, November, 1910. Treatment: Salvarsan injected intramuscularly, Nov. 7, 1910, and Dec. 15, 1910. Wassermann positive, Nov. 28, 1910; negative, Jan. 23, 1911; negative, May 9, 1911; negative, March 12, 1912. Luetin negative.

CASE 15.—F. S., American man, aged 22, private patient of Dr. Corbus, treated after the biologic method. Present condition: Early secondaries. Last symptoms, Sept. 4, 1911. Treatment: Injected salvarsan in oil suspension, Sept. 4, 1911; intravenously, Feb. 6, 1912. Vigorous mercury rubbings between salvarsan injections. Wassermann negative, Jan. 16, 1912. Luetin distinct papular (positive).

CASE 16.—C. L., American man, aged 38, private patient of Dr. Corbus, treated after the biologic method. Present condition: Incipient tabes. Infected eleven years ago. Treatment: Salvarsan injected intramuscularly, Jan. 9, 1911, and March 5, 1911; intravenously, Oct. 6, 1911, and Jan. 13, 1912. Vigorous mercury rubbings between injections. Wassermann positive, Nov. 28, 1910; positive, Feb. 23, 1911; negative, July 7, 1911; negative, Oct. 6, 1911; negative, Jan. 9, 1912. Luetin negative.

CASE 17.—M. A., American man, aged 36, private patient of Dr. Corbus, treated after the biologic method. Present condition: Secondaries. Last appearance of palmar syphilid, seven months ago. Treatment: Injected salvarsan intramuscularly, Jan. 28, 1911; intravenously, March 18, 1911; intramuscularly, August, 1911. Vigorous mercury rubbings between salvarsan injections. Wassermann negative, Aug. 22, 1911; negative, Jan. 16, 1912. Luetin distinct papular (positive).

CASE 18.—P. S., American man, aged 22, private patient of Dr. Corbus, treated after the biologic method. Present condition: Cured. Primary lesion, Jan. 21, 1909. Treatment: Vigorous mercury rubbings. Cure obtained before salvarsan was administered. Injected salvarsan intramuscularly, Jan. 17, 1911. Wassermann negative, Dec. 10, 1910; Feb. 15, 1911; April 15, 1911; Aug. 1, 1911, and Dec. 15, 1911. Luetin negative.

CASE 19.—O. J. G., American man, aged 31, private patient of Dr. Corbus, treated after the biologic method. Present condition: Latent secondaries. Chancre, September, 1905. Last symptoms, Oct. 20, 1910. Treatment: Neglected at first. Injected salvarsan intramuscularly, Oct. 20, 1910, and Dec. 11, 1910; intravenously, Sept. 2, 1911, and March 9, 1912. Vigorous mercury rubbings between salvarsan injections. Wassermann positive, Nov. 11, 1910; negative, Jan. 1, 1910; positive, March 8, 1912. Luetin distinct papular (positive).

CASE 20.—A. G., American man, aged 20, private patient of Dr. Corbus, treated after the biologic method. Present condition: Secondaries. Infected Jan. 1, 1911. Last symptoms May 6, 1911. Treatment: Internal. Salvarsan injected in oil suspension, 0.6 gm., May 6, 1911; intravenously, 0.4 gm., Feb. 24, 1911. Vigorous mercury rubbings between injections of salvarsan. Wassermann positive, April 20, 1911, and March 4, 1912. Luetin distinct papular (positive).

Two patients with acne vulgaris, both adults, were also tested with the luetin and gave a negative reaction.

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THE PSEUDOMALARIAL TYPES OF PYELITIS*

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The diagnosis of pyelitis (non-calculous and non-tuberculous) appears forty-seven times in the histories of 2,500 private patients examined by me during the past five years, an incidence of approximately 2 per cent. Of these forty-seven patients, twenty-one had been treated for malaria.

In most cases of infection of the pelvis of the kidney, constitutional symptoms arise that may closely simulate malarial fever. About one-half of the cases present local signs on the part of the kidney or bladder, or urinary disturbances manifest themselves in such a way as to direct attention to the existing lesion. In the other 50 per cent. of the cases, however, neither the history of the illness nor a thorough physical examination reveal any clues suggestive of an infection of the genito-urinary tract. As a result, pyelitis may remain unrecognized for long periods of time. Furthermore, the insidious onset without pain or local symptoms, the characteristic intermittent or remittent temperature curve, and chills occurring with peculiar regularity, all suggest malaria very strongly. The rigors in such cases are probably associated with a temporary blocking of the ureter-drain with inflammatory products, as the urine during the fever may be clear and free from pus, while at the termination of the paroxysm turbid urine loaded with pus is voided. Pyelitis in early childhood is much more common than is usually supposed, and is the cause of many unexplained fevers. One such instance is included in the report of cases below (Case 2).

Instances of pyelitis of the pseudomalarial type can be divided roughly into two groups, acute and chronic. The acute cases may be of very short duration and subside with sudden alacrity (Cases 3 and 4), or may last for weeks while the patient continues to be dosed with quinin. The chronic cases are not so frankly septic, but give rise to lesser symptoms, such as periodic aching in the extremities, chilly feelings, night sweats, etc. In one such case, reported below (Case 6) these symptoms had recurred every summer for fifteen years. The urinary findings in these chronic cases may be almost insignificant, and in women it is absolutely necessary to secure a catheterized specimen for microscopic examination, in order to exclude contaminating cellular elements from the external genitalia. The real difficulty in these chronic cases of pyelitis does not lie in disproving the diagnosis of malaria, as that can be readily accomplished by careful search through a stained blood-smear, but consists in excluding pulmonary tuberculosis, as the clinical history always suggests this latter possibility.

The diagnosis of pyelitis depends on the interpretation of the microscopic cellular elements present in the urinary sediment, correlated with the constitutional symptoms. Urethritis and cystitis, in the absence of local disturbances, can only be excluded by endoscopic or cystoscopic examination. It is not the purpose of this article to discuss the differential diagnosis of pyelitis from other pyogenic infections of the genito-urinary tract, but simply to emphasize the close clinical resemblance of pyelitis to malarial fever. In acute pyelitis the paroxysms may be identical with those of malaria, presenting hot, cold and sweating stages, with fever-free intervals. Chronic pyelitis gives rise to general symptoms that are commonly attributed to chronic malaria, although, as a matter of fact, the malarial parasite is so susceptible to the action of quinin that actual chronic malaria is an extremely rare condition and only arises in individuals who harbor the parasite and remain untreated. A great number of conditions masquerade under the name of chronic malaria, and not the least of these is a chronic low-grade infection of the genito-urinary tract.

The following six cases are reported in brief abstract from my histories of patients suffering from pyelitis.

CASE 1.—*Patient.*—A professional man, aged 53, who had always enjoyed excellent health, with the significant exception of an attack of acute prostatitis one year previously, developed chills and fever in September, 1906, while on a vacation at Hot Springs, Va.

Clinical History.—After having two shaking chills at an interval of forty-eight hours, he was told that he had malaria and returned to his home in Richmond. For over three weeks he continued to have hard chills followed by high fever and profuse sweating. The chills occurred every day, although on a few occasions he went two days without a rigor. After the chill his temperature often reached 104 F. Except for the chills, fever and sweats, he was free from symptoms, complained of no pain in any part of the body and had no symptoms on the part of the bladder or kidneys. Quinin was administered in full doses from the beginning of the illness and at the time this note was made he had been taking 40 grains of quinin daily for a week.

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Examination.—On Oct. 3, 1906, I was asked to see this patient. Physical examination was entirely negative. Examination of the blood was as follows: red blood-cells 4,472,000, white blood-cells 12,000, polymorphonuclears 75.2 per cent., small mononuclears 15.6 per cent., large mononuclears and transitionals 7.5 per cent., eosinophils 1.3 per cent., mast cells 0.4 per cent. Stained blood-smear: negative for malaria. Widal reaction: negative. A specimen of freshly voided urine was slightly turbid, acid, specific gravity 1.014, albumin good trace, no sugar, no bile. Microscopically, there were present many pus-cells, an occasional red blood-cell and a moderate number of hyaline and finely granular casts. Diagnosis: Acute pyelitis.

Treatment.—It was suggested that the quinin be discontinued at once. The patient was given hexamethylenamin (urotropin) and urged to drink large quantities of water. His recovery was remarkably rapid, and in one week he was out of the house. In the spring of 1908, he was examined for life-insurance and the urine was absolutely clear and his blood-pressure normal.

CASE 2.—*Patient.*—A girl, aged 3½, was brought to me Aug. 10, 1909. She had been subject at irregular intervals to attacks of vomiting, fever and abdominal pain. Three months previously she was thought to have swallowed a safety pin. For two weeks previously she had been running an irregular temperature which had reached 103 F. There had been no periodicity in the temperature curve, and no chills. The appetite was poor and bowels constipated.

Examination.—Complete physical examination was negative, and there was no reaction in thirty-six hours from a tuberculin ointment test. The chest and abdomen were *x*-rayed to determine if the safety pin was within the body. There was no evidence of the pin, and the skiagraph of the lungs showed no areas suggestive of tuberculosis.

Blood: Polymorphonuclears 53 per cent., small mononuclears 28 per cent., large mononuclears and transitionals 16 per cent., eosinophils 3 per cent. Negative for malarial parasites.

Urine: Amber, clear, white mucoid sediment, acid, albumin a good trace, sugar negative. Microscopically it showed moderate number of epithelial cells, very many pus-cells, an occasional red blood-cell, mucus strands, one hyaline cast was seen, no crystals. Stool: Well digested, no ova or parasites present. Diagnosis: Acute pyelitis.

Treatment.—Bland diet, forced water consumption, free catharsis, and hexamethylenamin 2 grains three times a day.

Aug. 27, 1909: A letter from the patient's mother stated that the child has had only one spell of fever since leaving for her home in another city. A specimen of urine, forwarded by express, showed no albumin and only an occasional epithelial and pus-cell under the microscope.

This patient was last heard from in March, 1910, and at that time was said to be in perfect health.

CASE 3.—*Patient.*—A medical student, aged 24, while apparently in the best of health, had a severe shaking chill on the afternoon of July 6, 1907. A second similar rigor occurred the next forenoon.

Examination.—That afternoon at 3:00 p. m., when I saw him, his temperature was 103.2 F. A specimen of blood was carefully examined for malaria but no parasites were present.

Urine: amber, slightly cloudy, slight white granular sediment, acid, albumin a distinct trace, sugar negative. Microscopically an occasional epithelial cell, a moderate number of pus-cells and about an equal number of blood-cells, no casts.

Diagnosis: Acute pyelitis.

Treatment.—He was sent to the hospital and his temperature on admission at 5:00 p. m. was 104 F. He then began to drink large quantities of water, and was given hexamethylenamin and his temperature steadily fell to normal by the following morning and remained so.

He returned for observation Oct. 3, 1907, and said he had had no recurrence of the symptoms, and an examination of the urine showed it to be perfectly normal. When last seen, during the summer of 1911, he said that he continued to remain in the best of health.

CASE 4.—*Patient.*—A business man, aged 60, had a hard, shaking chill during the night of Feb. 11, 1909, and this was accompanied by diffuse pain in the abdomen. For several months he had had some difficulty in voiding at times and had frequently suffered with some abdominal pain after urination.

Examination.—He saw me the following afternoon and his temperature was 100 F. at 4 p. m. Physical examination revealed no abnormality to account for his fever, and his blood-pressure was 135 mm.

Blood: Polymorphonuclears 82 per cent., small mononuclears 8 per cent., large mononuclears and transitionals 9 per cent., eosinophils 1 per cent. Negative for malaria.

Urine showed a trace of albumin together with the presence of a moderate number of epithelial and pus-cells, otherwise negative.

Diagnosis: Acute pyelitis.

Treatment.—Patient was given hexamethylenamin and advised to consult a genito-urinary specialist, as his symptoms were regarded as an acute exacerbation of a chronic lesion secondary to hypertrophy of the prostate.

The following morning his temperature was 98.8 and he felt well. A letter from him three weeks later said that he had had no recurrence of his symptoms.

CASE 5.—*Patient.*—A traveling salesman, aged 30, formerly a resident of Baltimore, had been treated for malaria every summer since he came to Virginia six years previously. He consulted me Sept. 4, 1907, and had been suffering since the middle of June in exactly the same way that he had been afflicted during the preceding five summers. The chief complaint was that of chilly feelings and night sweats which would occur every second or third day. He had had no shaking chills at any time, no cough, no increased frequency of urination, but had lost 15 pounds in weight in the past three months. Each summer he was told that he had an obstinate malaria, and was given quinin persistently and in large doses.

Examination.—Complete physical examination was negative. Temperature at 3 p. m. was 99.3 F.

Blood: white blood-cells 11,800, polymorphonuclears 77 per cent., small mononuclears 15 per cent., large mononuclears and transitionals 5 per cent., eosinophils 2 per cent., mast cells 1 per cent. Stained blood: negative for malaria. Urine: amber, clear, slight white mucoid sediment, acid, albumin a faint trace, sugar negative. Microscopically many strands of mucus, moderate number of epithelial cells, a few pus-cells, an occasional red blood-cell, no casts, no crystals. The following day a specimen of fresh urine was obtained after urethral irrigation, and carefully examined for tubercle bacilli with negative results. Diagnosis: Subacute pyelitis.

Treatment.—Sept. 14, 1907: Patient had been drinking large quantities of water and had been taking hexamethylenamin in full doses. The chilly feelings and night sweats had entirely left him, and he said he was feeling well.

Sept. 24, 1907: Remained well. Examination of urine showed no albumin, and no pus, blood or casts.

On June 23, 1908, patient had a slight recurrence of the pyelitis and complained of feeling tired and of an occasional chilly sensation. These symptoms entirely cleared up in about a week's time. When he was last seen, in the fall of 1911, he stated that there had been no further recurrence of his former symptoms and that he remained in the best of health.

CASE 6.—*Patient.*—A railroad conductor, aged 56, was seen March 1, 1911, and complained of chilly feelings with aching in the extremities for the past fifteen summers. Gave a history of chills and fever thirty years ago, and had gonorrhea many years ago, otherwise his past history was unimportant. Every summer for the past fifteen years he had suffered with aching, at times over the whole body, but chiefly in the legs. This aching was accompanied by chilly feelings, followed by a burning and a feeling as if he had fever, but he had not taken his temperature. Bowels were always regular. He had had to void with increased frequency and generally had to rise four or five times at night. Occasionally had burning on urination. No loss of weight. He had been treated for the past fifteen years for malaria, had taken a great deal of medicine and had also tried homeopathy, osteopathy and kindred cults.

Examination.—Physical examination was negative except for slightly suspicious signs of pulmonary involvement in the

left back. Blood-pressure was 126 mm.; temperature 98; rectal examination negative; prostate not enlarged.

Blood: polymorphonuclears 63 per cent., small mononuclears 24 per cent., large mononuclears and transitionals 11 per cent., eosinophils 2 per cent. Negative for malarial parasites.

Sputum: no blood, negative for acid-fast bacilli.

Urine: amber, clear, white flocculent sediment, acid, specific gravity 1.021, albumin, a trace, sugar negative. Microscopically occasional epithelial cell, many pus-cells, singly and in small clumps, no blood, no casts, calcium oxalate crystals.

Diagnosis: Subacute pyelitis.

Course.—Patient's symptoms did not respond to internal administration of hexamethylenamin, salol, creosote and other urinary antiseptics. The urine continued to show the presence of pus-cells. On three occasions the urinary sediment was stained for tubercle bacilli, but none could be demonstrated. On May 3 a percutaneous tuberculin test was applied and there was no reaction observed in twenty-four and forty-eight hours. The patient was then referred to Dr. L. T. Price, who found on cystoscopic examination an hypertrophy of the median bar of the prostate, with two ounces of residual urine. Local treatment was then instituted by Dr. Price, and when patient was last seen during the latter part of October, 1911, he said that he felt very well and had been free from all symptoms for the first summer in fifteen years.

SUMMARY

Forty-seven patients with pyelitis have been seen during the past five years, of whom twenty-one had been treated for malaria. The clinical features of these two affections may be almost identical. The differentiation, however, is not difficult, but the confusion of the two conditions will continue until physicians realize that quinin is a specific in malaria, and that it is useless to continue this remedy if the febrile disturbance persists. Furthermore, quinin, even in moderate doses, is irritating to an infected kidney. The constitutional symptoms of a low-grade chronic infection of the genito-urinary tract simulate pulmonary tuberculosis, but in the absence of cough the condition is often regarded as a chronic malaria. The urinary findings in these cases may appear almost insignificant, but a urine that is apparently clear on gross inspection will show the presence of a few pus-cells, often accompanied by an occasional red blood-cell. Pyelitis is the cause of many unexplained fevers, and this is especially true in the case of young children.

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THE GERMICIDAL ACTION OF BASIC FUCHSIN *

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GENERAL CONSIDERATIONS

"Fuchsin (rubin) is obtained by the oxidation of a mixture of anilin, ortho- and paratoluidin, by means of arsenious acid or nitrobenzol in the presence of iron chlorid, which acts as the means of carrying over the acid. . . . It is soluble in water, alcohol and amyl alcohol. Rubin is basic dyestuff and serves for the staining of cell-nuclei, fuchsinophil granulations and bacteria."[1]

A convenient classification of the anilin dyes, that of Krieger,[2] places the three salts of fuchsin in the rosanilin group. The members of this group, as given by Krieger, are:

Methyl violet 6 B. $C_{23}H_{30}N_3Cl$.
Malachite green $C_{23}H_{25}N_2Cl$.
Rosanilin acetate $C_{20}H_{19}N_3C_2H_4O_2$.
Rosanilin hydrochlorid $C_{20}H_{19}N_3Cl$.
Rosanilin sulphate $(C_{20}H_{19}N_3)_2SO_4$.

It is only with the last three members of this group, rosanilin acetate, hydrochlorid and sulphate, that I shall be concerned. These three salts are generally known as the fuchsins. The acetate is the most basic, and the sulphate most acid in reaction, and it is the acetate which is furnished us as basic fuchsin and the hydrochlorid and sulphate as acid, or ordinary fuchsin. This difference of chemical reaction in the salts is of importance, since Krieger[2] has shown that the greater the degree of basicity of the dye, the greater is its germicidal action. My experiments confirm these findings, with the exception that the results, when testing the germicidal action of the acid salts on bacteria, have been uniformly negative.

METHODS

There are many technical difficulties in the handling of the problem and many observers have attempted to work out a technic which will not be open to criticism. Ainley Walker and Murry[3] added such dyestuffs as Grubler's methyl violet, fuchsin and methylene-blue, in 0.2 per cent. solution, to culture mediums (principally plain agar-agar), sterilizing the mediums in the ordinary way. They often noted the precipitation of the coloring matters to the bottom of the tubes. They then inoculated the tubes with the bacterium under investigation and their experiments proved that very interesting morphologic and biologic changes occur in bacteria which are grown on culture mediums so prepared. They found that the motility of the *Bacillus typhosus* was lost; that the bacillus was replaced by a thread-like organism, twenty to thirty times as long as the original bacillus. No segmentation was noted, though branching forms were frequently encountered. With the work of Walker and Murry as a basis, many observers accepted it as a proved fact that the bacilli were dead. This I believe to be an error, since the tubes were not under observation for a sufficient length of time. I have noted growth after seven or eight days in tubes, in which no growth had been observed after forty-eight and seventy-two hours. This phenomenon is readily explained by an inhibitory, rather than a germicidal, action of the dye (as proved by Geppert,[4] quoted by Krieger).

Further, I have noted a very great difference in the germicidal action of the dye, when the inoculations were made into warm or cold solutions, cold solutions being for the most part non-germicidal, while warm solutions are uniformly active. Again, I have noted many times that solutions from which all pigment had been precipitated by careless sterilization had completely lost their power to kill bacteria. Because of heat applied during the sterilization of solutions of the dye, chemical changes occur in the dyestuff itself, perhaps new and entirely different chemical compounds are produced, and these are apparently more active than the original dyestuff.

Koch used what is known as the silk-thread method. He placed sterile silk threads in emulsions of bacteria and then allowed them to dry for twenty-four hours. They were then introduced into sterile solutions of various dyes and tested. Krieger dismisses the technic

* From the Pathological Laboratory of the Cincinnati Hospital.
1. Rohrman: Biochemie, Berlin, 1908, p. 482.
2. Krieger: Centralbl. f. Bakteriol., 1911, lix, No. 4, p. 481.
3. Walker and Murry: Brit. Med. Jour., 1904, ii, 16.
4. Geppert: Berl. klin. Wchnschr., 1889, No. 36, p. 37.

of Koch as open to error and bases his technic on the work of Walker and Murry. Briefly, Krieger's own method of investigation is this: bacterial suspensions were prepared from cultures and emulsified in sterile physiologic salt solution. They were then filtered and drops of the filtrate carried over with the platinum loop to the sterile cover-slips; the cover-slips were placed in the incubator for one hour (till dry); then the cover-slips were transferred to the various dye solutions for variable periods of time, washed in water and afterward dropped into broth-tubes. If no growth resulted (length of time of observation not stated), it was taken for granted that the microorganism was dead. Many sources of error arose as Krieger himself notes; too long drying may weaken or kill the bacteria, or they may be mechanically washed off.

My own technic is as follows, and I believe that I have obviated nearly all sources of error: carefully weighed quantities of basic fuchsin (Grubler's) were made up into a stock solution of 1 per cent., with double distilled water, placed in sterile bottles and kept away from the action of light. From this 1 per cent. stock solution, higher dilutions were made, 0.75 per cent., 0.5 per cent., 0.25 per cent., 0.1 per cent., 0.075 per cent., 0.025 per cent., 0.01 per cent. and 0.001 per cent. Five c.c. of these solutions were run into thoroughly cleansed sterile test-tubes and sterilized in flowing steam in the Arnold sterilizer for fifteen minutes on three successive days. This was determined after many trials to be about the limit of sterilization. Greater heat or prolonged heating brought about a precipitation of the dye.

The germicidal action of these stock fuchsin solutions was tested in the following manner: three loopfulls of the water of condensation from twenty-four hours agar-slant cultures were thoroughly mixed with the standard basic fuchsin solution. The bacteria-fuchsin solution thus prepared was constantly kept at a temperature of about 40 F. during the whole of the experiment. Immediately, and at intervals of one, five, fifteen, thirty, forty-five and sixty minutes, three loopfulls of the warm bacteria-fuchsin mixture were inoculated in a culture medium known to be favorable for the growth of the microorganism under investigation. Controls were made and the tubes incubated at 37 F. for from seven to fourteen days. Careful note was made of the presence of growth from day to day to ascertain that the results were not due to an inhibitive action of the dye on the bacteria. In several instances the original bacteria-fuchsin solution was also incubated with the other tubes, and, at the end of two weeks, centrifugalized, the bacteria thoroughly washed with sterile physiologic salt solution and new subcultures made. No growth was noted in any instance. The dye was also first added to the culture mediums and then inoculations were made. These also served as controls for any inhibitory action of the dye. As a routine procedure all bacteria-fuchsin mixtures were incubated and at the end of fourteen days subcultures were made with negative results where the solutions had otherwise been proved active.

The germicidal action of the fuchsin solutions was tested on *B. coli*, *B. typhosus*, *B. paratyphosus*, *B. enteritidis* (Gaertner), *B. dysenteriæ*, *Staphylococcus pyogenes aureus*, a saprophytic strain of *B. tuberculosis*, *Oidium albicans* from the human throat, and *Oidia* from a case of generalized blastomycosis. The culture of *B. coli* was isolated from a case of chronic cystitis with persistent colonuria. It was with a view to combating this latter condition that this research was originally undertaken. All of these stock cultures were furnished by Dr. W. B. Wherry, to whom I am much indebted for advice and assistance.

The accompanying table summarizes my bacteriologic investigations. In this table, results as given are *constant*. I have found repeatedly that fuchsin is germicidal in much higher dilutions than here shown (1 to 10,000 and 1 to 100,000), but it should be remembered that the action of these higher dilutions is variable.

TABLE SHOWING GERMICIDAL ACTION OF FUCHSIN*

Microorganisms	Strength of Solution	Time of Contact Necessary to Kill Bacteria (Min.)	Warm Solution	Cold Solution	Oversterilized Solutions	Controls
B. typhosus, B. paratyphosus, B. coli com., B. enteritidis, B. dysenteriæ*	1-1000 or 0.1 per cent.	5	—	+, ±	+, ±	+
	Less than 0.1 per cent. or 1-1000		+, ±	+, ±	+, ±	+
B., tuberculosis†	1-100 or 1 per cent.	5	—	+, ±	+, ±	+
	Less than 1 per cent. or 1-100		+, ±	+, ±	+, ±	+
Staphylococcus*	1-1000 or 0.1 per cent.	5	—	+, ±	+, ±	+
	Less than 0.1 per cent. or 1-1000		+, ±	+, ±	+, ±	+
Blastomyces†	1-1000 or 0.1 per cent.	15	—	+, ±	+, ±	+
	Less than 0.1 per cent. or 1-1000		+, ±	+, ±	+, ±	+
Oidium albicans†	1-100 or 1 per cent.	5	—	+, ±	+, ±	+
	Less than 1 per cent. or 1-100		+, ±	+, ±	+, ±	+

* In this table + means growth; —, no growth; ±, variable; *, subcultures made into + 1 broth; †, subcultures made into + 1 (1 per cent. acid to phenolphthalein) glucose agar slants.

It will be noted that a warm 0.1 per cent. (1 to 1,000) solution was lethal in five minutes to *B. coli*, *B. typhosus*, *B. paratyphosus*, *B. enteritidis*, *B. dysenteriæ*, and the *Staphylococcus pyogenes aureus*, while the blastomyces was not killed in less than fifteen minutes. In the case of *B. tuberculosis* and *Oidium albicans* lethal action was not manifested by higher dilutions than warm 1 per cent. (1 to 100) solution acting for five minutes.

I have made several animal experiments to show the non-toxicity of the dye. With warm 1 per cent. solutions I have made repeated irrigations of the urinary bladders of rabbits. Repeated and careful examination of the urine and sections of the bladders showed no irritation or inflammatory changes. Basic fuchsin has also been injected into the lumbar subdural space of dogs in 1 per cent. and 0.1 per cent. solutions with like effect. In the last two experiments the great *diffusibility* of the dye was especially well known. This I believe to be of importance in the use of the dye as a general surgical antiseptic, since a very recent work of A. von Wassermann,[5] on the treatment of cancer, is based on the great diffusibility of a dye carrying the therapeutic agent to poorly vascularized cancer cells. It is of interest to note

5. Wassermann: Deutsch. med. Wchnschr., 1911, xxxvii, 2389.

that in 1870, Stilling[6] advocated the use of anilin dye solutions in surgical dressings because of its great diffusibility, harmlessness and activity and because it coagulated no albumin.

CONCLUSIONS

1. From the results of my investigations with basic fuchsin I conclude that I have a germicidal agent which is more powerful than phenol (carbolic acid) and one which has a greater diffusibility and is less toxic.

2. From my clinical observations I conclude that I have a germicidal agent which has a marked stimulative action on epithelial and granulation tissue growth.

I have had as yet no experience with the dye in the treatment of lupus and blastomycosis, but hope soon to be able to try basic fuchsin in these cases and in a later report will give the results of my investigations.

THE VALUE OF INULIN AS A FOODSTUFF *

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For many years physicians have sought to replace the starch in the diet of diabetics by some other carbohydrate which is well tolerated by the organism and which can be eaten in sufficiently large amounts without discomfort. Prominent among these substitutes for starch stands inulin, a carbohydrate closely resembling starch in its physical properties.[1] Like starch it exists in the underground parts of many plants, as a reserve carbohydrate, but, unlike starch, it is a polysaccharid of levulose, the isomer of dextrose, which is the sugar yielded by starch on hydrolysis. Inulin occurs in the roots of many of the *Compositæ*, particularly in the tubers of the dahlia, the artichoke, elecampane, and other similar plants. Of these vegetables, the artichoke is the best known as an article of diet, and is most frequently recommended for diabetics.

Inulin is readily hydrolyzed to levulose by dilute acids, and inasmuch as this sugar is assumed to be well tolerated by most diabetics, inulin appears a likely source of energy for the organism. Mendel[2] has pointed out that not every carbohydrate by virtue of its chemical composition alone is a true nutrient for the human organism and that metabolism experiments with a study of the feces, i. e., a determination of alimentary digestibility, are necessary before accepting any carbohydrate as an available source of energy. With this point in view, the behavior of inulin has been studied in a healthy man.

As early as in 1874, Külz[3] reported that no sugar appeared in the urine of diabetics on an absolute flesh diet after feeding from 50 to 120 gm. of inulin. No inulin was found in the feces. Hence he concluded that inulin is completely assimilated in both mild and severe cases of diabetes. Von Mehring, in 1876,[4] reported that the use of inulin did not increase the sugar content of the urine. More recently Teyxeira[5] has recommended the addition of inulin to the gluten of wheat. Persia[6] stated that inulin was well digested and assimilated by diabetics in large doses and through long periods. He reported that the feces never contained large amounts of inulin. Strauss[7] reports the feeding of pure inulin with much benefit in two cases of diabetes. After administering from 40 to 100 gm. daily he found no sugar in the urine. Strauss recommends the use of vegetables rich in inulin, such as artichokes (14 per cent. inulin[8]), dandelions, etc. He also points out that the absorption of inulin naturally proceeds more slowly from vegetables than from the pure substance. Hale White[9] suggests that the tubers of the dahlia be cooked and eaten as a vegetable by diabetics.

The failure of sugar to appear in the urine of diabetics after inulin feeding may be ascribed to a tolerance for levulose formed in the organism by the conversion of inulin. But it is also possible that the beneficial effects, *judged from the standpoint of the failure of sugar to appear in the urine*, may be due to the fact that the inulin is not utilized and hence no carbohydrate is present to be excreted in the urine. Inulin may be decomposed in the intestinal tract or pass through it unchanged to be excreted in the feces. Miura[10] and Mendel and Nakaseko[11] have shown that even under the most favorable conditions, little glycogen is formed in rabbits after feeding inulin. Since the formation of glycogen takes place readily after levulose feeding, this strongly indicates a lack of assimilation of inulin. When inulin is introduced parenterally into the organism there is no inversion or utilization, the inulin being excreted in the urine.[12] Sandmeyer[13] recovered 46 gm. of inulin from the feces of a depancreatized dog to which 80 gm. had been fed.

The view that the favorable influence of inulin feeding on the sugar output in the urine is the result of nonutilization due to non-absorption is confirmed by the work of Neubauer.[14] In a case of levulosuria he found no increased levulose content of the urine after feeding 80 gm. of inulin. If inulin were converted in the body to levulose, then a large increase in the levulose content of the urine was to be expected. No inulin was found in the feces, but the patient observed a strong gas formation in the intestine during the period following the meal, indicating bacterial decomposition of the inulin. *B. coli communis*[15] and other intestinal bacteria decompose inulin without any production of sugar.

No enzymes found in the higher animals attack inulin,[16] nor do yeast invertin,[17] malt- or "Taka"-diastase.[18] That plants contain an inulase has been shown by Green,[19] Bourquelot,[20] Dean,[21] and others.

Very dilute acids (0.05 to 0.2 per cent. at 40 C., according to Chittenden[18]) hydrolyze inulin; so that the possibility of an inversion by the gastric juice, and subsequent utilization must be taken into account. Richaud[22] has shown that at 36 C. 0.1 per cent. hydro-

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6. Stilling, J.: Berl. klin. Wchnschr., 1870, No. 24, p. 531.

* From the Sheffield Laboratory of Physiological Chemistry, Yale University.

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2. Mendel: Zentralbl. ges. Physiol. u. Path. des Stoffwechsels, 1908, No. 17, p. 1.
3. Külz: Beiträge zur Pathologie und Therapie des Diabetes Mellitus, Marburg, 1874. Jahresb. Tierchem., 1874, iv, 448.
4. Von Mehring: Berl. Tagebl. 49 Versaml. deutsch. Naturforsch. u. Ärzte, 128; Jahresb. Tierchem., 1876, vi, 144.
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10. Miura: Ztschr. f. Biol., 1905, xxxii, 263.
11. Mendel and Nakaseko: Am. Jour. Physiol., 1905, xiv, 245.
12. Mendel and Mitchell: Am. Jour. Physiol., 1905, xiv, 239.
13. Sandmeyer: Ztschr. Biol., 1895, xxxi, 32.
14. Neubauer: München. med. Wchnschr., 1905, p. 1525.
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16. Swartz: Tr. Connecticut Acad. Arts and Sc., 1911, xvi, 298; a tabulation of the literature on this subject
17. Komanos: Jahresb. Thierchem., 1876, vi, 180.
18. Chittenden: Am. Jour. Physiol, 1898, ii, 17.
19. Green: Annals of Botany, 1888, i, 223.
20. Bourquelot: Compt. rend., 1893, cxvi, 1143.
21. Dean: Botanical Gazette, 1903, xxv, 69.
22. Richaud: Compt. rend. Soc. de biol., 1900, lii, 416.

chloric acid inverts 86 per cent. of inulin in twenty-four hours. Bierry and Portier[23] found that in one and one-half hours at 38 C. a 1 per cent. solution of inulin was converted to levulose by a gastric juice of an acidity equivalent to 4.19 gm. sodium hydroxid per liter. In the present investigation a qualitative experiment to determine whether this inverting action of the gastric juice takes place *in vivo* was performed. Two hundred c.c. of a 5 per cent. solution of inulin were introduced by a sound into the stomach of a dog and removed after half an hour. The gastric contents contained free acid, but gave only a weak reduction with Fehling's solution. After boiling with hydrochloric acid a strong reduction was obtained, indicating that the inulin had not left the stomach, but was present uninverted. After allowing the gastric contents to stand two hours at 39 to 40 C., a marked reduction was obtained, showing that the acidity of the gastric juice was sufficient to convert inulin into levulose in this time.

To determine whether inulin appears in the feces, feeding experiments on a healthy individual, 64.5 kg. in weight, were tried. In the first experiment the diet was not weighed, but all cellulose-containing foods were carefully avoided. The periods were divided as follows: Fore, two days; experimental, one day on which the inulin was taken at lunch and dinner; after, two days. The inulin was taken chiefly in soup or mixed with soft-boiled eggs. Although comparatively large amounts (40 and 60 gm.) were fed, the subject found no difficulty in eating the inulin, which was tasteless. The cellulose-free diet tended toward constipation, so that in the second experiment no attempt was made to secure a cellulose-free diet, but rather a diet approximately constant in its cellulose content. The periods were varied so that the fore- and inulin periods each were of three days' duration. In the inulin period a day before and a day after the eating of the inulin were included to insure against any of the carbohydrate being carried into the feces of the after-period.

FEEDING EXPERIMENTS

Series	Period (Days)	Diet	Composition of Feces in Periods: Weight Moist (Gm.)	Weight Air Dry (Gm.)	Carbohydrates as Inulin (Gm.)	Carbohydrates (Per Cent.)
1	Fore = 2	Cellulose-free	137	52	1.62	3.1
	Mid = 1	Same + 40 gm. inulin.	182	56	1.52	2.7
	After = 2	Same as fore-period..	170	50	0.8	1.6
2	Fore = 3	Mixed; constant.....	215	81	0.6	0.7
	Mid = 3	Same + 60 gm. inulin.*	300	89	1.31	1.4
	After = 1½	Same as fore-period..	...	40	0.2	0.5

* Taken in one meal on the second day of this period.

Separation of the feces into periods was accomplished with charcoal or carmin capsules. The feces were weighed, rubbed to a paste with alcohol, dried on a water-bath, weighed a second time, and ground. From the well-mixed sample from 1.5 to 4.5 gm. were heated on a water-bath with 75 c.c. water and 7.5 c.c. of 20 per cent. hydrochloric acid for from twenty to thirty minutes. The gummy materials were then precipitated with phosphotungstic acid, filtered off, and washed with hot water. The filtrate was neutralized, evaporated to 25 c.c., filtered if necessary, and a sugar determination made by Allihn's gravimetric method. Check determinations made on feces to which a known weight of inulin had been added before drying down showed that by the above method 85 to 90 per cent. of the inulin could be recovered.

No increased carbohydrate content of the feces was observed in the inulin period over the fore- or after-periods. In both experiments *the subject noted a marked gas formation* in the intestinal tract. This began in from two to three hours after the meal in which inulin was eaten and continued for from eight to ten hours. The gas formation was in harmony with the observations of Neubauer. In the experiments recorded, the tendency of the subject toward constipation, brought on by a cellulose-free diet, doubtless gave more opportunity for the action of the bacteria in the intestinal tract. In a subject without this tendency to constipation larger amounts of inulin might well be recovered in the feces.

CONCLUSIONS

1. Inulin fed to a healthy man was not eliminated in the feces.

2. Marked intestinal fermentation was observed to follow the feeding of inulin.

3. The acidity of the gastric contents of a dog to which inulin was given by a stomach sound was sufficient to hydrolyze inulin partially to levulose in from one to two hours.

These facts would seem to indicate that any utilization of inulin can occur only after hydrolysis by the gastric juice. The extent of this hydrolysis must vary with conditions in the stomach. If the diet is of such a character that it leaves the stomach soon, the action of the acid gastric juice is checked by the intestinal reaction before the inversion of inulin can proceed far. The acidity of the gastric contents also must influence the rate of inversion. The character of the diet and individual peculiarities both play a rôle here. Hence the percentage utilization of inulin for any individual must vary and cannot be determined except by experiment. Any inulin which leaves the stomach unchanged is liable to escape utilization and undergo bacterial decomposition in the intestine, a decomposition which results in no formation of carbohydrates. Any inulin which escapes this bacterial action is probably eliminated unchanged in the feces.

In view of these facts, as well as the inability to administer more than comparatively small quantities, the value of inulin as a significant source of energy in human dietaries must be questioned.

I wish to acknowledge my indebtedness to Prof. Lafayette B. Mendel, at whose suggestion these experiments were undertaken.

23. Bierry and Portier: Compt. rend. Soc. de biol., 1900, lii, 423.

Effect of Closing Schools During an Epidemic of Measles.—A striking example of the effect of closing the schools with the consequent lessened opportunity for contact of the children is afforded by a recent extensive outbreak of measles in South Shields, England (*Lancet*, London, Feb. 3, 1912). There were in this epidemic 4,470 children exposed to infection, and of these 2,180 were susceptible to measles. Of these, 853 children were attacked, 638 cases occurring during the time that the children were at school and 140 during a period of fourteen days after the school was closed; that is, 778 cases which might have been infected either in school or in the home life. Thus, at the time of the removal of the possibility of the infection at school there were still more than 1,400 children who were susceptible to measles. Only seventy-five of these children actually contracted the disease. This shows the important part played by the school in the spread of the infection of measles and the value of school closure in this epidemic as a preventive measure.

CONTRIBUTION TO THE SURGERY OF BONES, JOINTS AND TENDONS

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(Continued from page 1091)

An encapsulated chondrosarcoma of the upper end of the tibia followed a trauma. It did not involve the articular end of the bone for its entire transverse diameter, but it did involve it fully at the internal tuberosity. All of the diseased tissue was removed, but the epiphyseal line and the portion of the epiphysis close to the fibula were retained.

SARCOMA OF TIBIA

CASE 8.—*Patient.*—N. M., a girl aged 14, was admitted to Mercy Hospital Nov. 2, 1911. Family history was negative. Patient had the ordinary diseases of childhood; no rheumatism; no typhoid; no scarlet fever; no diphtheria. She had an attack of tonsillitis three years ago; good recovery; no complications.

Present Trouble.—About three years ago she fell from a porch railing, a distance of about 5 feet, and injured her right leg just below the knee, but paid no attention to it. About three or four months later she noticed a slight pain at the same point when running or jumping. The pain was just below the right knee-joint. Some weeks later patient noticed that there was some swelling on the tibia just below the knee, but took no treatment and continued with her school work. About a year and a half ago, or eighteen months after the original injury, while playing, she twisted her right leg. The pain following this was so severe that she was forced to lie down for several minutes before she got up and walked to the house. From this time on the pain became more severe and swelling increased in the region of the head of the tibia just below the right knee. One week after this injury a physician was called, who put the limb in a mold and instructed the patient to walk on crutches. She continued in this way for seven months, with very little complaint, except when she would put weight on her leg. About one year ago the mold was taken off and patient walked by aid of crutches and continued this to the time of admission. She said that during the past year her leg had been considerably swollen just below the knee. It had tenderness to pressure at this point, and she had pain when she put her weight on the leg, but none at all when she was at rest in bed. During the entire course of the trouble she had never had chills, fever, nausea or vomiting. General health had been good.

Examination.—This showed a marked elliptical enlargement of the upper one-fifth of the tibia, most marked on the inner side. It was hard, encapsulated and free from attachment to the skin. It extended over three-fifths of the antero-internal side of the shaft-head portion; was painful to pressure; did not fluctuate, and there was no bruit. Diagnosis chondrosarcoma of upper end of tibia. The joint was not implicated. There were no glandular enlargements; no metastases demonstrable. The patient was very anemic.

Operation.—Under ether anesthesia incision was made on the inner side of the tuberosity of the tibia and extending down parallel to the tibial crest for a distance of 7 inches. A transverse incision was made inward, across the tuberosity of the tibia to its posterior internal border. Elevating the skin flaps gave a good exposure of the tumor. It was clearly encapsulated and encroached closely on the epiphysis at its internal angle. All of its muscular attachments were freed, leaving the periosteum and the tendinous portion of the muscles attached to the tibia. The tendo patellæ was divided one-fourth inch from its tubercle attachment. The tibia was divided transversely with the saw, 4½ inches below the intercondyloid tubercle, and cut off above obliquely downward and outward, just below the cartilage, at the inner tuberosity, and ending three-fourths inch below the cartilage at the external tuberosity, and evulsed. The joint was open. The joint capsule was now sutured to the margin of the cartilage overlapping its under side, so as to close the joint. A piece of bone one-half by three-quarters by three-eighths inch and 5 inches long was removed from the crest of the opposite tibia. This was accomplished with the chisel, mallet and saw, and is not difficult if the retractor is properly fixed to keep the soft parts out of the field and steady the chisel when the initial creases are made. The lower end of the transplant was inserted for one-half inch into the medulla of the tibia and a nail placed transversely in it to retard its further entrance. The upper end was placed in a depression one-half inch deep in the remnant of the head of the external tuberosity of the tibia with another nail inserted transversely to retard its further depression. The internal hamstring tendons were attached to the side of the transplant by an encircling suture and the end of the tendo patellæ was fixed to the anterior surface of the transplant in a similar way. The wound was closed by a deep layer of catgut and the skin with horsehair. Primary healing. Leg placed in long mold from trochanter to toe.

Result.—Patient was put to bed without extension. The leg was kept in a mold. Examination on November 28 showed complete primary union of the line of incision, with infiltration and apparent production of new callus around transplant; not the slightest evidence of inflammation. Leather mold applied Dec. 25, 1911. Examination March 10, 1912, showed the upper end of the tibia normal in size. There were voluntary extension and flexion of 10 per cent. The patella was perfectly movable. She could bear some weight on the leg but was not permitted to walk on it.

A fragment was taken from the opposite tibia and inserted at the lower end into the medulla for half an inch, and at the upper end into a pocket especially prepared for it. Close to the fibular attachment a nail was inserted transversely in order to prevent the fragment from burying itself too deeply into the cancellated tissue.

The joint was opened during the operation, but its capsule accurately approximated at the close of the operation. The ligamentum patellæ and internal hamstring were fixed close to the surface of the implant by phosphor-bronze wire and chromicized catgut. A Buck's extension was then applied to the limb and the latter placed in a wire gauze cast. Primary healing occurred.

The skiagram (Fig. 39) showed the upper end well imbedded in the remaining fragment of the tibia, the lower end in the medulla and osteal regeneration taking place at both ends. This patient was up and about on crutches in the fifth week. She was examined by me on March 1, when she had about ten degrees of flexion of the knee, voluntary and without pain. She also had power to extend the leg through the ligamentum patellæ attachment. By palpation the tibial end appeared to be of normal size. There was no evidence of return of the neoplasm. The skiagram shows that in the soft callus there is as yet but a small bony deposit.

The malignant disease had been present so long in these two cases that it is questionable whether there may not be a metastasis in some other portion of the body. I believe, however, that the disease will not recur locally, and we have obtained in both of these cases advantages which we could not have obtained by an amputation.

I believe that this line of work offers a fairly good field in that consent to its performance can be gained so very early in the disease, and in the giant-celled sarcomata good results can be obtained by excision of a portion of the bone without amputation.

OLD POTT'S FRACTURE

CASE 9.—*Patient.*—H. McK., a girl aged 15, was admitted to Mercy Hospital Jan. 5, 1912. Family and personal history were negative.

V. 58
1912

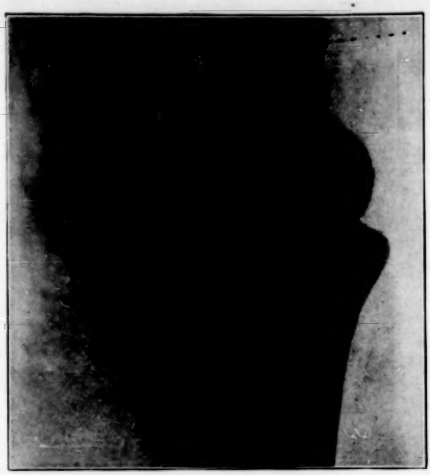

Fig. 38.—Sarcoma of upper extremity of tibia, not involving the joint, with destruction of inner aspect of tibia.

Fig. 40.—Tumor removed and bone split to show extent of growth which involved nearly all of the head of the bone, except the outer portion of the epiphysis, down to the tubercle.

Fig. 39.—Five inches of tibia were removed, leaving the articular surface to which the upper end of the transplant was nailed as shown, the lower end being inserted into the medulla of the lower fragment and nailed in position. This picture was made two months after the operation and shows beginning regeneration of the tibial shaft.

Fig. 41.—Metal jaw in position following resection of right inferior maxilla for neoplasm.

Fig. 42.—Showing freedom of motion of jaw with only slight flattening of cheek on right side. Picture taken three years after operation.

Fig. 43.—Non-union and deformity of old fracture of tibia.

Fig. 44.—Apparent union of tibia.

Fig. 47.—Reposition after operation, nails in position. Notice manner of refracture of internal malleolus, and, by comparison with Figure 1, the change in relationship between the astragalus and the tibia.

Fig. 45.—Implantation of fragment from tibia. Six weeks after operation. New bone forming with perfect union.

Fig. 46.—Deformity following old unreduced Pott's fracture, the fracture having occurred in both malleoli. The line of fracture still visible. External luxation of astragalus.

Fig. 48.—Two months after operation. Nails removed and bony union between each malleolus and its respective shaft. Astragalus in plumb line with articular surface of tibia.

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1912

Fig. 49.—On the left is the foot before operation; on the right, after operation; symmetry restored.

Fig. 51.—Fracture of left ulna.

Fig. 54.—Showing non-union of humerus with perfect apposition of bone after use of Lane plate.

Fig. 55.—Showing bone transplant in position, four months after operation, with apparent bony union.

Fig. 52.—Ends of fragments prepared for approximation; upper fragment of radius to be impacted into lower fragment; fragments of ulna to be approximated only by phosphor bronze wire sutures.

Fig. 50.—Fracture of right radius and ulna.

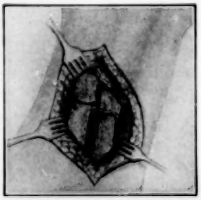

Fig. 53.—Operation on bones completed.

Fig. 56.—Old fracture of neck of femur; non-union and upward displacement of shaft of bone. Head of bone in acetabulum.

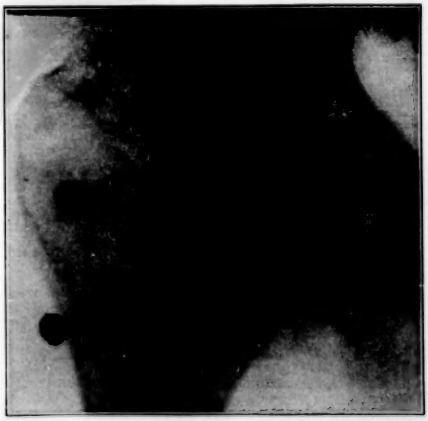

Fig. 57.—Ten weeks after operation, showing nails in position, with complete bony union. Motion somewhat limited.

Fig. 58.—Fracture of lower end of humerus with displacement of fragments and deformity causing limitation of flexion.

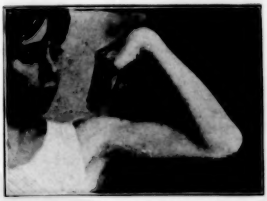

Fig. 60.—Eight weeks after operation with full flexion. Extension was likewise perfect.

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Fig. 59.—Immediately after operation, showing ability to flex arm. Picture taken through cast.

Fig. 62.—Six months after operation, showing nails still in position and bony union between head and shaft. Position normal; some limitation of motion yet. The phosphor bronze wire used in suturing is still in situ.

Fig. 61.—Fracture of neck of femur with wide separation, due to interposition of capsule, and some upward displacement.

Fig. 63.—Deformity following Pott's fracture. Failure of union between external malleolus and fibula. Foot everted.

Present Trouble.—June 8, 1911, the patient stepped on a stone, her foot slipped, and was forcibly everted. She fell to the ground and could not rise. The ankle and leg were much swollen, red and intensely painful. The leg was placed in a fracture-box at once and twenty-four hours after the accident a mold was applied and left on for six weeks. When it was removed the ankle was deformed and the foot was everted. The patient had been able to walk since but limped. There was visible shortening of the leg. She could not hold the foot in a straight line with the leg.

Examination.—The proximal portion of the tibia was overriding internally the base of the internal malleolus, and the latter was directed downward and outward instead of backward and inward. The external malleolus was broken off and displaced outward and also upward on the outer surface of the fibula. A plumb line drawn through the middle of the tibia passed just to the inner side of the articular surface of the astragalus, showing the outward luxation of this bone. There was a pronounced abduction of the foot. It was a classical superlative deformity from a Pott's fracture.

Operation.—The internal malleolus was exposed by an incision to the inner side of and parallel with the tendon of the tibialis anticus. The line of fracture at the base of the malleolus was clearly demonstrated. It was refractured a little higher up and on a line directed upward and inward from the articular surface, so as to permit of sliding upward when the deformity was reduced. The external malleolus was then exposed and divided on a line more slanting upward and outward. The new-formed interosseous ligamentary attachments were freed, and the foot was displaced inward. The internal malleolus slid upward on the inner surface of the tibia and the external malleolus was slipped downward on the outer surface of the fibula. The internal malleolus was then fixed with one nail driven upward and outward, and the external malleolus was fixed with two nails, so that the midline of the articular surface of the astragalus was held a little to the inner side of the midline of the articular surface of the tibia. The foot was dressed in an adducted position and flexed on the tibia. Primary union resulted. The mold was removed at the end of four weeks, when motion in the ankle was perfect and painless. Seven weeks after the operation the nails were removed.

Result.—Complete bony union with a little thickening of both the external and internal malleoli, due to the callus round the large freshened bony surfaces made during the operation. The patient stands plumb on her foot, and has perfect motion on leaving the hospital, March 7, 1912. (Figs. 46-49).

FRACTURE OF SURGICAL NECK OF HUMERUS WITH LUXATION FRACTURE OF NECK OF HUMERUS

CASE 10.—*Patient.*—B. McG., a boy aged 17, was admitted to Mercy Hospital Jan. 30, 1911. Family history was negative. The patient had common diseases of childhood.

Present Trouble.—Jan. 14, 1911, the patient fell downstairs, falling sixteen steps. He thought he struck on his right shoulder, but was not positive.

Examination.—The skin of right elbow was abraded. After the injury the patient could not move his arm at the shoulder in any direction, nor could he flex the forearm on the arm at the elbow. He had a great deal of pain at the shoulder which was increased on movement of all kinds. He was immediately taken to a doctor, who dressed the arm flexed on the abdomen with adhesive tape, and left it alone until January 22, when it was redressed. Since the accident he had not gained any more use of the arm or shoulder. Any movement of the shoulder caused him some pain. Pressure in the axilla or on the shoulder caused severe pain. The right shoulder was lower than the left and was greatly increased in size. Fracture of surgical neck.

Treatment.—Under ether anesthesia the head of the right humerus was rotated and displaced inward; this was the upper fragment. The fracture was replaced with levers, and traction on forearm made and the humerus elongated sufficiently to permit the sliding of the upper and lower fragments outward, and they were put in proper position, accurately adjusting them. The arm was rotated at right angles and turned inward to chest and proper approximation made. A nail was driven from the outer and lower fragment upward connecting the lower and upper portions of the fragments, to prevent subsequent slipping of the head of the humerus outward. The soft parts were then closed with sutures. The right radial pulse was not disturbed and was felt by Drs. Murphy, Kreuscher and Quillan.

Result.—There was primary union of the soft parts and primary bone union. The result was perfect; free motion and full strength restored.

Fig. 64.—Same case as in Figure 63, after operation. External malleolus nailed to tibia and foot brought back to its normal position. Dressed in extreme adduction.

Fig. 65.—Fracture of tibia and fibula showing non-union after wiring.

Fig. 66.—Showing the intramedullary bone splint in tibia five months after operation.

FRACTURE OF SURGICAL NECK OF HUMERUS

CASE 11.—*Patient.*—E. S., a girl aged 10, was admitted to Mercy Hospital Sept. 23, 1910. Family and personal history were not given.

Present Trouble.—Patient fell from a horse September 10, landing on her left shoulder. She got up and walked to the house. A doctor was called and by the time he came the shoulder was greatly swollen and a diagnosis was not made. Following the injury the patient did not move the arm much, but held it flexed on her abdomen. A bandage was applied and the arm kept at rest. Whenever the arm or shoulder was moved it caused her severe pain in the shoulder. The patient could move the arm forward and backward, but she could not abduct it.

Operation.—An incision was made over the joint and the fractured bones exposed. The lower fragment overrode the upper fragment about one-half inch, and it was necessary to remove about half an inch before it could be reduced. The

epiphyseal line was not disturbed. After the bones were brought in apposition they were secured by a nail driven from the outer side of the upper end of shaft through it and into the head. The skin was sutured by horsehair and a mold applied.

Result.—Primary union of soft parts and bone. Perfect functional result.

UNUNITED FRACTURE OF RADIUS AND ULNA

Case 12.—*Patient.*—Mrs. P., aged 28, was admitted to Mercy Hospital Nov. 2, 1911. Family history was negative. Patient had scarlet fever at 18, and occasional attacks of tonsillitis.

Present Trouble.—Aug. 29, 1911, she was injured in an automobile accident, being thrown into a barbed-wire fence. There was a cut across the left cheek and upper lip extending down into the antrum on the left side, and tearing out a large portion of the superior maxilla. Both bones in forearms were cut and all posterior tendons and muscles were divided about 4½ and 3½ inches respectively above the wrist-joint. There was also a division of the right triceps muscle down to the humerus and an inch of separation of the musculospiral nerve of the right arm. There was a considerable separation of the ends of the radius fragments in the right arm. All wounds became infected and discharged pus, especially the wounds in the right forearm. There was failure of union in both forearms and of both bones.

Fig. 67.—Showing final result twenty-six months after operation. Complete bony union.

Fig. 68.—Fracture of first phalanx of index finger with deformity.

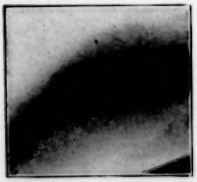


Fig. 69.—Deformity reduced and fragments held in place by ivory peg. Complete bony union.

Examination. — When the patient was admitted to Mercy Hospital all of the wounds were still open except the one in the right forearm. There was inability to extend the wrist or fingers of both hands. On the right this was due to paralysis of musculospiral nerve and division of all extensor tendons, on the left to division of all the tendons and muscles in the forearm.

Treatment.—The first operation consisted of curettement of the necrotic bony tissue and freshening of the bone ends of the ununited bones in both forearms. The left radius and ulna united and six weeks later the muscles and tendons were sutured with primary union. The sinus in the right forearm healed. This was the second operation. There was a separation of three-fourths inch between the ends of the radius in the right forearm. The ulna was contacted. With a spiral drill three-eighths inch in diameter a cavity was made three-fourths inch deep into the distal portion, and the conical tip of the proximal fragment was inserted into this, after removing its periosteum throughout the entire circumference of the invaginated portion. This permitted of contacting of the ends of the radius and of the approximation of the divided and separated muscles and tendons. These were accurately united with catgut. Primary union occurred except in a small area of the skin. There was no suppuration. Bony union of both bones followed.

Eight weeks after the operation a fourth operation was done to reunite the divided nerves of the right arm. A deep scar existed across the musculospiral nerve on the upper part of the middle third of the posterior surface of the arm. The skin was bound to the periosteum of the humerus. This was all freed. Much granulation tissue was found on the surface of the bone. The triceps was spread and after a very extensive dissection the proximal and distal ends of the musculospiral nerve were exposed. The upper end was split a distance of an inch and a half and a flap pulled downward across the gap and contacted end to end with the distal portion. The neuromata were removed from both ends of the nerve before the flap was made. By a 40-degree rotation the ends of the triceps were brought into position, and the same rotation permitted of apposition of the edges of the skin wound. There was much tension on the sutures. They cut the skin which separated for a considerable extent, as did also the muscle, exposing the nerve in the bottom of the wound. A secondary suture was made with fair result. Whether the nerve flap survived this exposure was not definitely determinable, as it was covered over with granulation, although it appeared to live. The patient had not been heard from since she left the hospital. It will be 15 to 18 months before it can be determined whether we have nerve union or not. (Figs. 50-53).

Fig. 70.—Result two years after transplantation into the nose of a phalanx taken from another patient, showing a return of the saddle nose. The transplantation was done because of a congenital aplasia of the nasal bones.

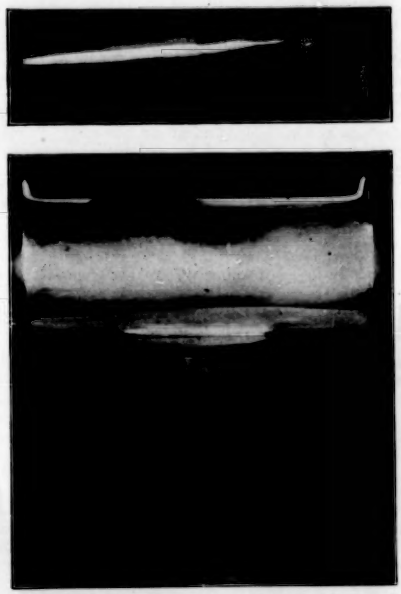
Fig. 71. — Travois splint (Rainey modification), a double trough placed on slotted supports used in hip cases. The troughs can be separated as desired by sliding laterally on the supports and are then held by thumb screws in the slots.

Fig 72.—Double right-angled division of lower end of femur after correcting deformities at the knee-joint. It prevents the backward luxation of the upper end of the lower fragment by the traction of the gastrocnemii.

HETEROLOGOUS IMPLANTATION

The implantation of foreign material is confined to a few situations in the body, and only a few materials can be used. The field must be absolutely sterile and where

osteogenetic elements are present magnesium plates, tubes or columns may be used to advantage. This metal eventually is absorbed. In positions where it is impossible to secure a primary sterile field, as in operations on the mandible, non-absorbable material may be used, particularly in the face, where the circulation is so rich and tissue resistance so great that the infection is overcome and the foreign material becomes encapsulated, without a sinus forming subsequently. After the removal of portions of the jaw, as for giant-cell sarcoma, an open



Figs. 73 and 74.—Side and top view of author's retractor-guide used in removing a transplant from the crest of the tibia. The spikes at either end of the free edge of the curved plate are inserted into drill holes in the tibia, thus providing a straight edge by which the chisel is guided in removing the transplant. The curved plate retracts the soft tissues without bruising them.

Fig. 75.—The author's medulla reamer. There are three lengths, all of the same shape and thickness. This reamer is used to ream out the medulla so that the cavity will be of the proper size to receive the transplant.

cantilever silver wire support may be used and it becomes encapsulated, as is illustrated in the case of Miss S., operated on May, 1908 (Figs. 41 and 42).

A sarcoma had attacked the angle of the right half of the mandible. The jaw was removed on that side up to the incisor teeth with evulsion of the head from the capsule. A silver wire model, with a metal head of normal size and shape of the mandible, was inserted in its place. The head was sutured into the capsule and the soft tissues were quilted through the wire framework and the mucosa of the mouth accurately approximated within and the skin accurately united on the outer surface.

The front end of the framework was inserted into the left half of the mandible for a distance of one-third inch and blocked to prevent its further entrance. The framework was a little longer than the normal conformation of the jaw, and was made so purposely because the jaw on the opposite side was still growing, and we felt that it would more nearly balance the normal side later. Suppuration occurred around the framework, as it communicated with the mouth a profuse discharge was present for six weeks, and then ceased entirely. The sinus healed and the framework became completely imbedded.

In a report received three years after the operation the patient's physician states that there is no sinus either in the mouth or on the cheek; that the girl's face is a little flattened on that side, but that there is perfect apposition of her teeth in the half of the jaw not excised; that she will now have bridgework done to fill in the alveolar process on the side from which the jaw was removed. There is no deflection of the remaining half of the jaw to the right side, either with the mouth closed or with it open.

This implanted framework is not so likely to heal in without fistula formation in less vascular and less resisting tissues of the body. The mouth and face offer the best field for its use.

Small wires or cables made up of a number of fine strands, such as phosphor-bronze wire, may be inserted for security in places where suppuration is present. These materials readily become encapsulated, notwithstanding their primary infectivity.

SURGERY OF JOINTS

ANATOMY AND EMBRYOLOGY OF THE JOINTS

A joint is made up of bones, capsule (a synovial membrane and fibrous layer), ligaments and cartilage. It is unnecessary to give an abstract description of the relation of bones to joints. Individual articular conformations will be mentioned in considering the special joints. The capsule of a joint is composed of (a) synovial membrane, and (b) the inelastic fibrous tissue in layers and bands external to the synovial layer.

The capsule limits the motion of the joint to its normal anatomic range as it is *fibrous* and *inelastic*. Therefore, in every operation on joints the condition, retention, incision or transplantation of the capsule must govern the subsequent limitation of motion in the joint. The capsule and capsular ligaments do not stretch—they break if forced beyond their normal limitations, and reunite under favorable conditions.

It is the inflammatory condition of the capsule and the subsequent pathologic contractions and fixations of this inelastic tissue that account for much of the limitation of motion following inflammatory lesions of joints. The capsule is attached to the bone on the articular side of the epiphyseal line, close to it. It is difficult or impossible to infect the fibrous layer of the capsule, and it is slow to yield to inflammatory destruction, on account of its low vascularity. It withstands a great intra-articular pressure and necrotizes slowly, even in the case of virulent infections.

To determine the intra-articular pressure-resistance of the joint capsule, the following experiments were made on the cadaver for me by Dr. Kellogg Speed.

EXPERIMENT 1.—An adult male cadaver. The point of injection for the hip-joint was selected at about three-quarters of an inch below the iliopectineal ridge from the pelvic side. The tissues about the hip-joint were carefully dissected away, and the joint capsule was exposed intact. A small hole was bored through the pubic bone at the point mentioned, and a cannula (No. 4, American scale) introduced through this opening into the joint. Care was taken that the opening was a trifle smaller than the cannula, which had to be forced in, producing a water-tight joint about it, and causing no weakening in any point of the joint capsule. By means of a connecting rubber hose, with screw and washer joint, on an especially prepared hand hydraulic pump, connection was made between the joint cavity and the pump, which permitted the joint to become filled with water and subjected to hydraulic pressure, as indicated on the gauge dial of the machine. Pressure was started slowly, allowing the joint to fill with water. As the amount of water injected increased, it was noticed that the leg was rotated slightly inward and was also semiflexed. Pressure was raised by the handle until rupture of the capsular ligament occurred at the lower anterior and outer aspect of the joint. Bursting pressure registered at 52 pounds to the square inch.

EXPERIMENT 2.—From the right knee-joint of an adult male cadaver, fresh and well injected, the skin and superficial fascia were removed with great care, from the middle of the thigh to the middle of the leg, to avoid weakening or opening the capsule of the joint. Through a point in the middle of the lower third of the patella a hole was drilled into the knee-joint as in the hip-joint experiment. The cannula was driven in and hydraulic connection completed. The joint was filled with water, and at a pressure of sixty pounds to the square inch a small point of leakage was established in the inner anterior aspect of the capsule where it joins the shaft of the tibia. Further pressure was exerted, and a final rupture of the capsule occurred at a 78-pound pressure to the square inch. There was no leakage around the cannula. The limb assumed a semiflexed position at the knee.

EXPERIMENT 3.—A cannula was introduced into the right knee-joint of a large adult male cadaver, as in the preceding experiment, and at 60 pounds pressure to the square inch a leakage was established in the lower border of the capsule, complete rupture not occurring until 90 pounds pressure had been exerted. The limb assumed a semiflexed position at the knee.

EXPERIMENT 4.—The left knee of the same cadaver was injected in the same manner as the right. The bursting-pressure was found to be 110 pounds to the square inch.

EXPERIMENT 5.—The same plan was followed as in Experiment 4 on the right knee-joint of a male cadaver. A small leakage occurred at 40 pounds pressure to the square inch. The bursting-pressure was 120 pounds.

CONCLUSIONS

1. In the hip of an ordinary adult cadaver the capsule or capsular ligament can withstand an internal pressure of from 35 to 50 pounds to the square inch before rupturing.

2. The capsule and capsular ligaments of the average cadaver knee can withstand an internal pressure of from 60 to 120 pounds before rupturing. It was incidentally noted that as the intact hip-joint becomes subjected to severe internal pressure, the leg tends to become slightly rotated inward, adducted and flexed, exactly the position it most frequently assumes in the early stages of an acute infection with effusion as it is least painful in this position and accommodates the greatest quantity of fluid with the least intra-articular tension.

The synovial membrane is the most important structure to be considered in connection with diseases of joints. It is a closed pouch, and has many pockets and diverticulæ, depending on the degree and character of the motions of the individual joint. Not infrequently the synovial membrane communicates with the synovial sheath of the overlying tendons.

The synovial membrane is of endodermic origin, conconsisting of: (a) a covering of endothelial cells, with leaf-like projections or synovial villi in which the capillaries form terminal loops—the most important layer in the pathology of hematogenous infections; and (b) subserous tissue containing a large number of lymphatics, but the lymphatics have no stomata or openings on the free synovial surface, which accounts for the rarity of, and difficulty in producing infections on the joint surfaces without traumatization of the endothelial layer of cells. When the endothelial cells are disturbed, the infiltration of the connective tissue and lymph-spaces beneath takes place rapidly. Immediately underneath the endothelial cells there is a network of terminal capillaries. It is in this vascular subendothelial layer that practically all the hematogenous and rheumatic infections and microbic localizations take place. Primary infection of the surface of the endothelial layer rarely occurs, except in compound injuries.

The articular cartilage forms a thin incrustation on the joint surfaces of the bones, varying in thickness according to the articular surface on which it lies. It is a pearly-hued substance, in reality a modified connective tissue, but much harder than most connective tissues. It belongs to the hyaline variety and consists of an apparently homogeneous structureless material within which are so-called cartilage spaces containing the round or oval nucleated cartilage cells.

The interarticular fibrous cartilages are composed of white fibrous tissue and cartilage in varying proportions. The cells are fewer in number, but are possessed of more definite capsules than those of hyaline cartilage and they are usually arranged in groups surrounded by small islands of hyaline matrix. They cannot be infected and do not become the seat of inflammation. The investing membrane of the cartilage, the perichondrium, is composed of an outer fibrous layer, which contains blood-vessels, and an inner chondrogenetic layer which contains cartilage-forming cells. The articular cartilage appears to derive its nutriment partly from the vessels of the neighboring synovial membrane and partly from those of the bone on which it is implanted.

Important arterial anastomoses surround all the larger joints. From the larger vessels, smaller branches pass inward to the ends of the bones, to the periphery of the articular cartilages, and to the capsule. The margins of the cartilages are surrounded by vascular loops. The articular surfaces are, however, free from blood-vessels. The synovial membrane is usually well supplied with minute branches, a rich network being described as being present at the bases of the synovial fringes. *It is in the terminal loops of these that the infective micro-organisms find lodgment and from which they subsequently make their escape into the joint in hematogenous synovitis.*

The lymphatics are well developed directly beneath the inner surface of the synovial membrane, and while it is certain that they absorb from the joint, direct openings into the articular cavity have not been demonstrated.

The regeneration of cartilage, as of bone, depends on the return of the essential cellular structures to their embryonal form, their proliferation and subsequent differentiation into the type of the elements composing the tissue. The ligamentous cartilaginous redevelopments from connective tissue are beautifully illustrated in the

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ligaments and cartilages that develop around and in an ununited fracture of the tibia, humerus or femur.

From a practical point of view, the classification of joint conformations is as follows: synarthrosis, amphiarthrosis and diarthrosis. The latter is divided into:

Ginglymus:
  Elbow.
  Ankle.
  Wrist.
Ginglymo-arthrodial:
  Knee.
  Temporo-mandibular.
Enarthrodial:
  Shoulder.
  Hip.

The diarthrodial joints are the joints that most concern us in surgical work.

The conformation of bones at a joint has very important relations to its motion, pathologic processes, to the obliteration of motion after disease, and to the possibilities of its restoration by arthroplasty. The ligamentous portion of the capsules as altered by pathologic processes is much more important than was formerly believed.

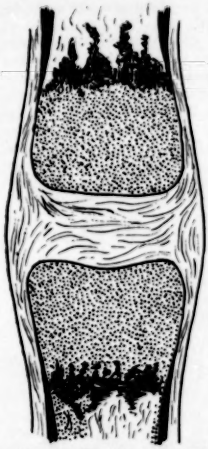

Fig. 76.—Bones are united by young connective tissue (Piersol).

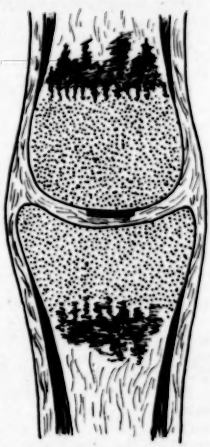

Fig. 77.—Appearance of joint cavity (Piersol).

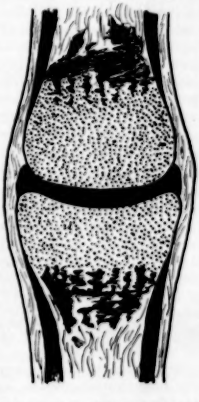

Fig. 78.—Differentiation of joint cavity and capsule (Piersol).

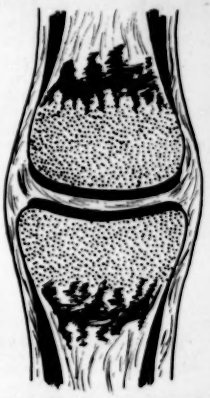

Fig. 79.—Development of two joint cavities separated by fibrous septum resulting in a compound joint (Piersol).

The types of motion present in these joints are the hinge, ball and socket, which are the sliding and rotary motions of the forearm, shoulder and hip; the two latter are the most favorable for the restoration of motion after ankylosis, as the degree of sliding motion is extremely limited compared with that of the elbow and knee.

The embryology of joint formation is best illustrated by the works of Hertwig, Meyer and Gegenbaur, and may be summed up as follows:

Diarthrosis is a differentiation of primitive synarthrosis, of which it is a transformation. This mode of union exists almost exclusively between parts of the skeleton and is preceded by preformed cartilage during their development. When a joint is formed between two bones which are not developed from primordial cartilage, it is produced secondarily from cartilaginous tissue between the rudiments of these bones.

The origin of joints seems to be in connection with the differentiations and perfection of the cartilaginous parts of the skeleton. These are separated for a long time by interposed indifferent tissue (Fig. 76). At the same time that the cartilaginous elements of the skeleton increase, the interposed connective tissue which separated them at first, is itself transformed into cartilage and disappears. Figure 77 shows the beginning of this cartilage formation at the expense of the interposed connective tissue. Finally, the two terminal cartilaginous surfaces of the two skeletal organs are found in immediate contact or continuous; they each have a predetermined form, characteristic of each joint. The two contiguous extremities of the skeletal parts are found separated by a mass of cartilaginous tissue, formed at the expense of the primary intermediate tissue (Fig. 78).

A slit, at first very delicate, soon appears in this intermediate cartilage, and divides it into two layers, applied against the terminal surfaces of the cartilaginous skeletal parts. These layers constitute the articular cartilages (Fig. 79). At the same time, the slit has become more extensive—the joint cavity which separates the articular surfaces of the two bones.

Externally the joint cavity is limited by connective tissue extending from one skeletal piece to the other. This connective tissue is continuous beyond the joint surfaces with the periosteum (perichondrium) of the two developing bones. It is this connective tissue surrounding the joint cavity which gives rise to the joint capsule (Fig. 80). The external layers of this tissue are differentiated into an outer fibrous membrane, generally tough, called the capsular ligament, and an inner softer layer turned toward the joint, which it lines. It is richly vascular and constitutes the synovial membrane.

The capsular ligament is not equally developed over its whole extent. It remains thin in certain places and thickens in others, so as to form bundles of more rigid fibers. These bundles develop in a given direction, acquire a variable freedom, and may even become completely separated from the capsular ligament, depending

on the demands of support and tension placed on them. Thus are formed the accessory or auxiliary ligaments.

The intermediate interposed tissue, which existed in the rudimentary joint, is not always entirely appropriated in the increase of the articular ends of the bones. When the joint surfaces do not correspond closely to each other, remnants of this tissue persist at the periphery of the joint cavity, united to the synovial membrane of the capsule. These remnants project into the joint cavity and constitute prolongations or folds of the synovial membrane.

In other cases, the differentiation of the contiguous articular ends does not go so far. The two articular surfaces do not contact over their whole extent, but only a part of it; in this class of cases a larger part of the intermediate tissue persists in the joint capsule. The joint surfaces are thus more or less discordant. This intermediate tissue is then transformed into fibrocartilage, which on cross-section is semilunar in shape.

In some cases, a continuous joint cavity is not formed, the embryonic intermediate tissue being less utilized in the formation of the articular cartilages. Before the transformation of the contacting articular surfaces can take place, a slit appears between the joint surfaces and the intermediate tissue, which develops into a joint cavity. It follows, then, that each of the articular ends will be lodged in a special joint cavity, separated from the one containing the other bone by a layer of intermediate tissue. This latter tissue is finally transformed into an interarticular cartilage, separating the two articular cavities of the same joint, as in the temporomandibular articulation. These interarticular cartilages may be continuous or not. When they are not continuous, as is the case with the semilunar cartilages, the two special joint cavities are incompletely separated from each other. When they are continuous, on the contrary, the joint cavities are completely separated by them. In both cases, they are the remains of the primitive continuous intermediate tissue.

Fig. 80.—Diagram showing parts of a typical joint (Piersol).

The first stages of joint development occur during fetal life, when no muscular action is present. The characteristic feature and disposition of the joint surfaces are already formed before the joint can functionate. The final transformation, i. e., the extension of the joint cavity, etc., occurs only after the joint is put to use. It is determined by the skeletal movements and by muscular action.

EMBRYOLOGY OF INDIVIDUAL JOINTS

The wrist and ankle have a purely endochondral ossification; the cells of connective tissue grow into the cartilage from the perichondrium, dissolve the matrix of cartilage and unite with one another in the center; there arises a network of medullary (marrow) cavities, in the vicinity of which there is a deposit of salts of lime (a provisional calcification). The medullary spaces extend farther and farther by destruction of the cartilaginous substance; then there are formed by the superficially located medullary cells, bone lamellæ, which gradually increase in thickness. The osseous nucleus thus formed slowly increases in size, until finally the cartilage is almost entirely replaced, only a thin layer of it remaining at the surface as a covering for the bone.

The question whether the extremities of bones, the articular surfaces, are subject, as far as their form is concerned, to mechanical laws only, has been much discussed. According to Bernays, the early and typical form of joints appears to be a matter of heredity. The muscles also have a decided influence on the later forms of articular surfaces.

According to His, the development of the body of vertebrates in the ovum is determined and controlled by mechanical laws, while Haeckel considers heredity a determinant factor.

L. Fick states that at the end of the second month, the joints show a tendency to shape; still "the greatest irregularity exists in the form of articular surfaces." Among the articular surfaces of phalanges there are no two joints alike at that period.

In regard to the question, what determines the form of articular surfaces, Fick has shown in his monograph that muscular activity is responsible for the peculiar form of the different articular surfaces. By experimenting on young dogs, he noticed that the section of muscles is followed by a change in the form of the corresponding articular surfaces and also of the interarticular space. This corresponds with the changes in conformation resulting from pathologic external limitations of motion occurring in early childhood. By experimental immobilization of the joints of growing dogs, the space and form of articular surfaces were changed; the interarticular line became irregular.

As to the question why one extremity of bone becomes a prominent surface, while the next extremity becomes an articular cavity, several explanations are given.

Fick says that besides the muscular activity, on account of more active circulation, the multiplication of cells is more marked in one end than in the other, so that it penetrates the latter and forces it to excavate.

Henke and Reyher explain this by the fact that the muscles force one bone, that on which the insertion is nearer to the articular surface, against the other bone, on which the insertion is further from the interarticular line, so that it determines the formation of a cavity by means of pressure in the former.

The essential phenomena, says E. Retorer, concerning the formation of the joint cavity, take place when the cartilaginous segments are nearly in contact and before there is any articular slit. We find that at this stage the superficial layers of the cartilaginous segments are not yet free; the flattened and crowded cells limiting these segments are succeeded by a much clearer connective tissue. This is made up of fusiform and stellate cells, whose numerous prolongations form meshes filled with Wharton's jelly. In other words, the embryonic connective tissue which is not transformed into cartilage has developed into mucous connective tissue, the interval between the cartilaginous segments where the future joint will be.

Little by little, these meshes become larger and larger, the prolongations of the cells more and more thinned, the cell body less and less clearly outlined, staining with difficulty. In short, the cells with their prolongations atrophy and, with the nuclei, disappear and, at the same time, the joint surfaces become free. By undergoing

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mucoid transformation in the interval between the cartilages, the embryonic connective tissue gives rise to the first synovial fluid.

On the inner side of the joint capsule, the connective tissue persists as closely packed elements and gives origin to the synovial membrane which is lined with many tiers of flat cells. Hence there are the following stages in the formation of a joint cavity.

1. Existence of an embryonic connective tissue with closely packed cells.
2. The production of fusiform and stellate cells whose prolongations anastomose.
3. Elaboration of mucoid substance in their meshes.
4. Atrophy of the cellular elements and their prolongations.

The joint cavity succeeds the evolution of this embryonal connective tissue, which in place of producing cartilage or bundles of areolar tissue, elaborates the mucoid substance giving rise to the first synovial fluid.

Every joint begins with a stage at which the segments present are bound together by a compact tissue, which establishes their continuity. While most joints remain thus, we see this connective tissue persisting in movable joints only at the capsules, ligaments, etc., which becomes fibrous, fibrocartilaginous, or even osseous tissue.

At the places where the skeletal segments come in contact, however, their continuity is changed into contiguity, because the thin layer of intervening connective tissue has disappeared by mucoid degeneration. In other words, every diarthrosis passes through a transition state which may be compared with an amphiarthrosis.

HYGROMA—BURSA

While in the embryology of joint formation, always primarily formed without a cavity, a splitting or liquefaction of cartilaginous or connective tissue between the cartilages takes place, the superficial bursæ are made by the same splitting between fat capsules (subfascial) on aponeurotic mesoblastic tissue. Fat tissue rapidly or easily changes to connective tissue. Bursa formation is due to the absorption of fat from fatty tissue and the coalescence of the small fat capsules with an increase or hyperplasia of the connective tissue and its degeneration, with the development of collagen.

It is the solution or liquefaction of the collagen in the center that forms (fibrinoid—a degeneration product) the fluid in the cavity of the bursa. The fluid is a liquefied collagen, not a secretion from the surface of the cavity (serous), as Virchow taught. The "rice bodies" are dead proliferations of partially developed tissue or fibrin of the small villi or *Zotten*.

Hygroma is, then, the result of a degenerative or absorptive process in fatty tissue with hyperplasia of the connective tissue element, the conversion of the collagen into solution "fibrinoid," a liquefaction of hypertrophied connective tissue. The cells lining the newly developed cavity appear as flattened endothelial cells; these are really transformed connective tissue cells.

The hygroma has no vessels and, therefore, cannot become inflamed. It may be the seat of phlegmon and necrosis, but it is not itself a part of the process. (It cannot be cured by drainage unless necrosis takes place, but it can be cured by extirpation.) Hygromata and ganglia are the combined products of liquefaction of hypertrophied connective tissue.

In the development of artificial joints, it is the utilization of this transformation of fat and connective tissue into hygroma that gives us movable sliding endothelial-lined surfaces, which so closely resemble joints. The aponeurosis that is to be used in the construction of artificial joints should have in it a considerable quantity of fatty tissue, which when subjected to pressure forms the hygroma. This is not infrequently seen in the non-union of fractures in the shafts of the long bones, forming what is known as "the false joint" or "interosseous sac." It is the recognition of this pathologic condition that has led me to its utilization in arthroplasty.

(*To be continued*)

MALIGNANT PNEUMOCOCCUS TONSILLITIS

LEONARD K. HIRSHBERG, A.B., M.D.
BALTIMORE

About the second week of January, 1912, it became evident in Baltimore that an unusual type of tonsillitis, with *adenitis*, peritonitis and septicemic complications was epidemic. Physicians practicing internal medicine could not fully differentiate the variety of tonsillar-pharyngeal infection prevailing from the common strepto-staphylococcic variety.

It was not until the end of February and March that the realization dawned on the Baltimore profession that they were dealing with a virulent manifestation of some microorganism that had taken on a new malignancy — that had assumed a new pathologic rôle.

Of forty-three cases studied clinically and by bacteriologic methods from January 23 to March 28, 1912, occurring in the practice of Drs. Sylvan Rosenheim, Claude Stoncifer, B. F. Phillips, Leo Cohen, my own and other physicians, the following complications occurred:

Thirty patients had cervical glands enlarged.
Ten had one or more submaxillary glands larger than a hen's egg (6 by 2 cm.).
Ten suffered with a remittent rise of temperature for two weeks or more.
One was operated on forty-eight hours after onset for appendicitis.
One died of peritonitis.
One died of septicemia.
Three were affected with arthritis in elbow, intercostal and shoulder joints.
Eight exhibited only pharyngeal injection with symptoms of general systemic infection and no tonsillar involvement.
Six had a bronchitis with abortive throat signs.
Four had otitis media.
One suffered a mastoid abscess.
One had meningeal symptoms, relieved by Dr. Sylvan Rosenheim by double paracentesis.
One had a peritonsillar abscess.

The most striking clinical picture in this Baltimore epidemic has been the sharp onset, with the invasion always in the throat, general adenitis, great virulence, fulminant type of death in forty-eight hours in the lethal cases, impossibility of proving milk, water or food responsible in the spread of the epidemic, and the constant presence of the pneumococcus as a possible causative organism.

In all of my cultures, obtained from abscesses, glands, ear discharges, infected tonsils and other secretions, besides a few contaminating streptococci and staphylococci, an encapsulated diplobacillus was isolated. This organism was also obtained by me in pure cultures from an epidemic fatal to white rats that occurred in one of the laboratories of the Johns Hopkins University.

Although Pasteur, Sternberg, Fraenkel and others long ago pointed out the fact easily verifiable, that the

pneumococcus can be isolated from the saliva of healthy men, no actual throat disease was attributed to the pneumococcus until Sir Felix Semon reported two cases[1] due to this organism.

All of my cultures were made first on the blood-serum agar furnished by the Baltimore Health Department. From the transparent isolated colonies, transplantations were made to milk, and other media. From the milk, smears were fixed for twenty seconds with tannic acid of 10 per cent. strength. After washing and blotting, this was stained with a saturated alcohol solution of gentian-violet mixed with four times as much carbolated water (5 per cent.) for one minute, and then washed and stained with the Gram-iodin solution for a minute. This is decolorized with alcohol and restained with a 60 per cent. alcohol eosin solution.

The *Streptococcus mucosus* will not show so distinctly in this stain as the pneumococcus. Hence, when I found an encapsulated coccus, occurring in pairs and short chains, and colored brownish-black, in a capsule stained pink, fatal to mice in twenty-four hours, I felt more or less convinced that we were dealing with the pneumococcus.

Since this pneumococcus predominated even in the contaminated cultures, and killed white rats within twenty-four hours after infection, I do not consider it radical to hold that the pneumococcus in question is responsible for the outbreak at present endemic in Baltimore.

1937 Madison Avenue.

MULTIPLE DIVERTICULA OF ILEUM

F. E. WALKER, M.D., HOT SPRINGS, S. DAK.

Patient.—A girl, aged 11, was brought to the hospital Feb. 11, 1912, suffering from typhoid. Five days after admission she complained of pain in the appendiceal zone and within ten hours the pain was so marked as to signify an intense infection and inflammation having all the appearance of an oncoming rupture. The pulse and temperature rose steadily, the thermometer registering 106 F.; the pulse was 164. Vomiting set in and was profuse.

Operation.—An incision of liberal length was made along the outer border of the rectus muscles. A large amount of straw-colored fluid was released and a portion of the omentum, completely free from any adhesions, presented itself in the opening. The cecum was almost rigid and the appendix not visible. A large semisolid and irregular-shaped mass was felt about 2 inches from the ileocecal valve; it consisted of the appendix, greatly enlarged and inflamed and firmly adherent to the under-surface of the ileum and to one small and one large diverticulum of the ileum. A third diverticulum was in close proximity to the tip of the appendix but not attached in any manner thereto. The large diverticulum was filled with a fecal mass as large as a man's thumb. The tip of the appendix carried three small concretions. The base of the appendix was slightly gangrenous, the body and tip very much injected and blood-vessels stood out prominently. Appendix was removed and stump cauterized. The small diverticulum was pursed into the bowel, while the other two pouches were removed, inverted and sutured over as in an enterostomy.

Postoperative History.—All symptoms rapidly subsided after the operation; the wound healed nicely, although the typhoid condition ran its usual course, and the patient finally recovered sufficiently to return to her home. I have never seen in practice or in the literature a similar case. It is not uncommon to run across a diverticulum in abdominal work but I believe it unusual to see a multiple condition.

1. Semon: Brit. Med. Jour., June 26, 1909.

A CASE OF EXTENSIVE PIGMENTED AND HAIRY NEVUS

OF THE "BATHING-TRUNK TYPE," PRESENTING GENITAL TUMORS

HOWARD FOX, M.D.
NEW YORK

It is fortunate that the extensive cases of pigmented and hairy nevus are infrequent, as the condition may be extremely disfiguring and is practically impossible to relieve. The majority of such lesions are seen on almost any portion of the body and do not present any particular configuration. In a certain number of cases, however, the lesions, for some unknown reason, are situated on the lower portion of the trunk and upper portions of the thighs and closely simulate in appearance a pair of bathing-trunks. This peculiar localization is well shown in Figures 1 and 2.

Patient.—Rose M., a girl 4½ years old, born in the United States, of Russian parents, is the second of four children all of whom are living and healthy. There is no tendency in any member of her family to suffer from any form of nevus. While the lesions were present at birth, the mother says that the pigmentation has gradually become darker, and the growth of hair somewhat longer and more profuse. The child is intelligent, strong and sturdy and has always enjoyed excellent health.

General Description of Nevus.—About one-half of her body is covered by pigmented and hairy lesions. The greater portion of the nevus consists of a solid symmetrical sheet, involving the lower two-thirds of the trunk and upper three-fourths of the thighs. The upper borders of this area extend anteriorly from the point midway between the umbilicus and xiphoid, upward and outward to meet posteriorly and include three-fourths of the surface of the back. The color of the pigmented area is brown. It is not uniform, however, but more or less mottled by the presence of small black spots scattered over the brownish surface. The pigmentation on the abdomen is somewhat less marked than it is on the back and legs. The greater portion of the area described is covered by an abundant growth of dark hair. This is most marked on the anterior surface of the thighs, where the long stiff hairs form a veritable coat of fur. The hair on the abdomen is soft and downy in character. On the legs are several rounded pigmented areas averaging 8 cm. in diameter and covered with long stiff hair. The soles present a few pigmented spots, the palms being free. The remaining portions of the body, including the face and scalp, present a large number of pigmented spots varying from a pin-head to a quarter in size. The smaller lesions are smooth while the larger ones are more or less covered with hair. On the right cheek there is a white scar, where a pigmented hairy lesion had previously been removed by the application of nitric acid.

Tumors.—The lower right aspect of the back presents a large, raised, flattened area of soft and elastic consistency. Bordering on this large area are two rounded soft tumors, the larger being the size of a large cherry. The right inguinal region presents an elongated soft elastic swelling about 3 inches long, simulating a hernia in appearance. It is, however, not reducible and gives no impulse on coughing. Arising from the labia majora are three globular, soft, elastic tumors. Their surface is smooth, and the skin covering them is normal in appearance and not adherent. Two of the tumors arise from the left side of the vulva, one above the other. The lower one is pedunculated and the size of an apricot. The upper one is as large as a hazel-nut and is sessile. The tumor on the right side is the size of a cherry and is pedunculated. The appearance of the child at first glance is that of a male, the little, genital tumors looking like testicles. With the exception of these tumor-masses of the labia the genital organs are perfectly normal in appearance.

V. 5
1912

In the literature I have been able to find reports of twenty-five cases of the peculiar "bathing-trunk" type of nevus. In a general discussion of pigmented nevus, Bircher[1] quotes the case recorded by an anonymous author in the *Lancet*,[2] and cases reported by Kostial,[3] Hebra and Kaposi,[4] Jablokoff and Klein,[5] Michelson,[6] Hyde,[7] Hardy,[8] von Planner,[9] Linke,[10] Joseph,[11] Eichoff,[12] Moller,[13] Ornstein,[14] Thienel[15] and Rossi.[16] Bircher also mentions the case of Ruggieri, quoted by Alibert,[17] but does not include it as one of the same type. That it was apparently a case of the "bathing-trunk" configuration would appear from the statement of Alibert, who wrote that the situation of the lesions was such that "one could have thought that she wore a waistcoat and a pair of drawers." In addition to these sixteen cases I have found six that had escaped the notice of Bircher, namely, those reported by de Amicis,[18] Scarenzio,[19] Variot,[20] Röhring[21] and Reinhart[22] (two cases). Since the report of Bircher, three cases have also been published by Rost,[23] Bonn[24] and Fasal,[25] making a total of twenty-six cases of this peculiar form of nevus.

Of these patients, twelve were females and thirteen males, the sex of one patient not being stated. The ages at which the patients were observed ranged from infancy to middle age. In three of the cases the lesions did not quite complete the contour of the bathing-trunk while in another case the nevus was unilateral. In the majority of the patients there were numerous other small pigmented, or pigmented and hairy lesions, scattered over various parts of the body. In ten of the cases mention was made of accompanying tumor masses, described as firm elastic or lipomatous tumors or as nevus molluscifformis. Indeed these tumors seemed to one author (Hyde[7]) such a prominent feature that his case was reported as nevus lipomatodes. In the case of Moller,[13] some of the tumors were found under the microscope to be sarcomatous, while in that of Thienel they became carcinomatous when the patient was 40 years old.

As a rule the patients did not complain of any physical discomfort from their lesions, although Röhring[21] states that his patient suffered great inconvenience from the presence of fleas. In my case there was a constant disagreeable odor from decomposition of urine and sweat about the genitals, which, however, was entirely relieved after the tumors had been excised by Dr. George H. Semken. In the case of the woman quoted by Alibert,[17] the nevus was responsible for a most pathetic occurrence. The patient married a man who was deeply in love with her, but who did not know of her affliction. He was so horrified on learning of her condition that he sued for and obtained a speedy divorce.

Fig. 1.—Extensive pigmented and hairy nevus of the "bathing-trunk type," presenting genital tumors, in a girl 4½ years old.

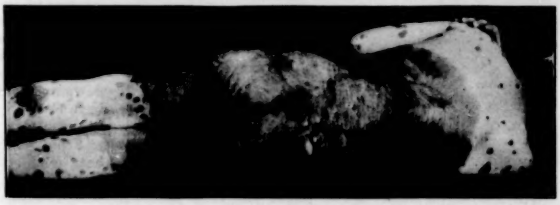

Fig. 2.—Posterior view of same patient as in Figure 1.

While any extensive treatment in my case has of course been impossible, some improvement has nevertheless been obtained in the lesions on the face and hands by applications of nitric acid, phenol (carbolic acid) and carbonic acid snow.

In conclusion I may add that my patient has previously been presented before several dermatologic societies, including the Sixth International Congress of Dermatology.

616 Madison Avenue.

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13. Moller, J.: Grosser schwimmhosenartiger Naevus pilosus mit Pigmentsarkom, Wien. med. Wchnschr., 1889, xxxix, 466.
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20. Variot, G.: Note sur le lésions de la peau dans la mélanodermie congénitale, Arch. d. Physiol., 1887, Series 3, x, 225.
21. Röhring: Ein Fall von umfangreichem behaartem Naevus, Deutsch. med. Wchnschr., 1893, xix, 943.
22. Reinhardt, P.: Ueber Naevus pilosus und zwei neue Fälle von Schwimmhosen-Naevus, Inaug. Dissert., Jena, 1895.
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Classification in Bacteriology.—In other biologic sciences the classification into species, genera, families, orders, classes, etc., is not only of great convenience, but it also expresses for use something of the relationship of the different groups, something of their probable ancestry and line of evolution. I see no reason why the bacteria should not be classified in the same way.—Gorham in *Science*.

A NEW TRACTION FRAME *

PERCY WILLARD ROBERTS, M.D.
NEW YORK

The traction frame illustrated was devised for a dispensary patient with acute hip-joint disease whose treatment it was necessary to conduct in a dirty and ill-ventilated home. The child needed traction and fresh air, and by use of the frame was enabled to have both. The effectiveness of the apparatus was so well demonstrated in this case that I have used it in several ward cases at the Post-Graduate Hospital with entire satisfaction and believe it to be more efficient than the ordinary form of bed traction, with the added advantage that patients may be carried into the fresh air when desired.

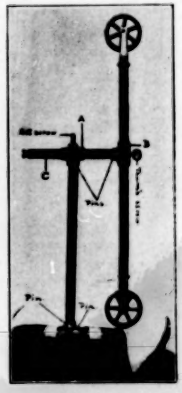


Fig. 1.—Detail for new traction frame.

This traction device is added to the end of an ordinary gas-pipe frame (Fig. 1). It is made of stock fittings which are inexpensive and readily obtainable. In assembling the parts the only caution necessary is the insertion of pins (indicated by white points in Fig. 1) to prevent movement of certain pieces which should be stationary. Free motion at *A* and *B* permits of adjustment at any angle from 90° to 180° and abduction if desired by slipping outward rod *C*. *A* and *B* are reducing Ts with the largest caliber big enough to take the pipe passing through without binding.

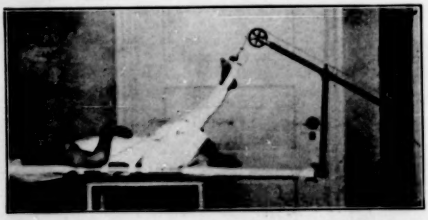


Fig. 2.—Traction frame, showing patient with acute right hip disease.

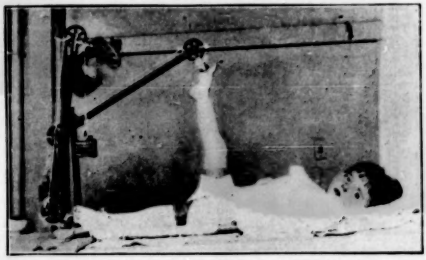


Fig. 3.—Case of bilateral hip disease—one side acute with extreme flexion—on traction frame. Note that cord from right leg goes over upper pulley and cord from left leg goes under lower pulley.

Figures 2 and 3 show the frame in use in acute hip-joint disease both unilateral and bilateral, and also the detail of construction.

40 East Forty-First Street.

* Shown before the Orthopedic Section of the New York Academy

ORCHITIS SECONDARY TO TONSILLITIS TREATED WITH HEXAMETHYLENAMIN

REPORT OF A CASE

IRA HUMPHREY PROUTY, B.S., M.D.
BELLOWS FALLS, VT.

The therapeutic uses of hexamethylenamin have multiplied rapidly since its introduction into medicine by Nicolaier,[1] in 1894, and his demonstration of its excretion in the urine, in 1899. The well-known researches of Crowe,[2] in 1908 and 1909, showed that after administration of the drug by mouth it appeared in the bile, pancreatic juice, cerebrospinal fluid, synovial fluid, saliva, milk, pleural exudate and circulating blood. In 1910, Barton[3] reported that hexamethylenamin is eliminated by the mucous membrane of the middle ear. Following this announcement Brown[4] was quick to draw the inference that it should also be eliminated through the mucous membrane of the nasal sinuses, and Heitmuller[5] demonstrated that it is eliminated by the bronchial mucous membrane. A year later, Armstrong and Goodman[6] found that "hexamethylenamin, when given by mouth, is excreted in the sputum of tuberculosis, pneumonia, bronchitis and asthma." From these facts Nicolaier,[1] Crowe,[2] Richardson,[7] Churchman,[8] Barton,[3] Brown,[4] Heitmuller,[5] Armstrong and Goodman,[6] Bagby,[9] Miller,[10] Vanderhoof[11] and others have made many suggestions regarding the use of hexamethylenamin which have been applied therapeutically with the most gratifying results.

From a cursory glance through the literature I have been unable to find any mention of the use of the drug in the treatment of orchitis, and it is for this reason that I wish to report the following case, which is of further interest in that orchitis is only occasionally met with during tonsillitis.[12]

The patient, Mr. X., aged 20, unmarried, was a printer by occupation. His family and past history were unimportant.

1. Nicolaier: Centralbl. f. d. med. Wissensch., 1894, xxxii, 897; Deutsch. med. Wchnschr., 1895, xxi, 541; Deutsch. Arch. f. klin Med., 1899, xxxviii.
2. Crowe: The Excretion of Hexamethylenamin in the Bile and Pancreatic Juice, Bull. Johns Hopkins Hosp., 1908, xix, 109; The Excretion of Hexamethylenamin in the Cerebrospinal Fluid, Bull. Johns Hopkins Hosp., 1909, xx, 102.
3. Barton: The Elimination of Hexamethylenamin by the Mucous Membrane of the Middle Ear, THE JOURNAL A. M. A., March 12, 1910, p. 871; Elimination of Hexamethylenamin by the Mucous Membrane of the Middle Ear and Nasal Sinuses, Boston Med. and Surg. Jour., June 30, 1910, p. 896.
4. Brown: Hexamethylenamin in Suppuration of the Middle Ear and the Nasal Sinuses, THE JOURNAL A. M. A., April 16, 1910, p. 1308.
5. Heitmuller: Excretion of Hexamethylenamin, THE JOURNAL A. M. A., April 9, 1910, p. 1222.
6. Armstrong and Goodman: The Excretion of Salicylic Acid and Hexamethylenamin in the Sputum, THE JOURNAL A. M. A., May 27, 1911, p. 1553.
7. Richardson: Jour. Exper. Med., 1899, iv, 19.
8. Churchman: Johns Hopkins Hosp. Rep., 1906, xiii, 189.
9. Bagby: Hexamethylenamin in Pellagra, THE JOURNAL A. M. A., Nov. 5, 1910, p. 1663; April 29, 1911, p. 1280.
10. Miller: Hexamethylenamin: A Remedy for Common Colds, THE JOURNAL A. M. A., June 10, 1911, p. 1718.
11. Vanderhoof: Hexamethylenamin in the Treatment of Bronchitis, THE JOURNAL A. M. A., Feb. 3, 1912, p. 331.
12. Keyes: Diseases of the Genito-Urinary Organs, D. Appleton & Co., New York, 1910, p. 623.

He denied venereal disease; his habits were excellent. For one week previous to the time when I first saw him the patient had not been feeling well, although he was able to remain at work. He had felt extremely tired, had lost his appetite, could not sleep, and had had an almost constant headache and general pains over the body. He thinks he had had some fever. The day before I saw him he had the nose-bleed, which lasted for about one-half hour. The same day his throat began to be sore, and he noticed that his left testicle was swollen and tender.

Examination.—The patient was seen at 5 p. m., Dec. 24, 1911. His face was flushed, the lips dry, and the patient looked sick. The tongue was heavily furred and the breath was foul. No lead line could be made out. The tonsils were swollen and injected, and the pharynx was intensely reddened. The parotids were neither tender nor swollen. The heart and lungs were negative. The abdomen was negative except for slight tenderness in the lower left quadrant. Spleen was not felt. There were no rose spots. The left testicle was indurated and swollen. It was about one and one-half times the size of the right, and was very tender and painful. Pulse was 110; temperature, 102.8 F.; respirations, 30.

Treatment and Course.—The patient was given 5 grains of acetylsalicylic acid every two hours, and was told to spray the throat frequently with Dobell's solution. The testicles were supported and external cold applied to scrotum and neck.

December 25: The patient complained of severe and persistent pain in the head, back and extremities. The tonsils were greatly swollen and inflamed and the crypts contained a cheesy-looking exudate. The parotids were neither enlarged nor tender. The tenderness in the lower left quadrant of the abdomen had disappeared. Spleen was not felt. The left testicle was nearly twice the size of the right, was exquisitely tender, and the pain had been severe since the previous day. No effusion into the tunica vaginalis could be made out. Temperature, 102 F. Blood examination showed hemoglobin, 85 per cent.; leukocytes, 12,300; polynuclears, 67.3 per cent.; mononuclears, 25.3 per cent.; no abnormality of the red cells was noted. Widal test was negative; Diazo, negative. Acetylsalicylic acid was discontinued and the patient was given 10 grains of hexamethylenamin every six hours.

December 26: Patient still complained of some pain in the head, back and extremities. The local condition of the throat was much better. The parotids were not enlarged nor tender. The left testicle was still swollen and slightly tender but there was but little pain. Temperature was 101.3 F.; pulse, 104; respirations, 25. Widal and Diazo tests were negative.

December 27: The patient was decidedly better; had no pain. The tonsils remained a little swollen but were not injected and the crypts were practically clean. The left testicle, although still enlarged, had diminished considerably in size and was neither tender nor painful. Temperature was normal. The dose of hexamethylenamin was reduced from 15 to 5 grains every six hours.

December 30: The left testicle had markedly diminished in size but still remained slightly swollen. It was neither tender nor painful. The treatment was discontinued.

From a careful study of the case, and after excluding the ordinary causes of orchitis, I conclude that in this instance the orchitis was in all probability a metastatic infection derived from the primary foci in the tonsils. In view of the bactericidal properties of hexamethylenamin when decomposed within the body, it occurred to me that possibly the drug might favorably influence the course of the orchitis. What appeared at first to be a severe inflammation of the testicle very rapidly improved within forty-eight hours after the administration of the drug was begun. It is, of course, impossible to draw conclusions from a single case, but the result obtained here would, it seems to me, justify a further trial of hexamethylenamin in similar non-venereal inflammations of the testicle.

21 School Street.

A PRACTICAL OPHTHALMODYNAMOMETER FOR OFFICE USE

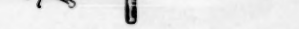
E. J. GARDINER, A.B., M.D.
CHICAGO

The measurement of the amplitude of accommodation and convergence, and of the relative range of accommodation and convergence, does not receive, in routine practice, the attention that its importance demands. This neglect is due, partly, to a lack of appreciation of the significance attached to the data furnished by such measurements, and, partly, to the fact that a low-priced practical ophthalmodynamometer is not to be found on the market.

The accurate measurement of the relative range of accommodation and convergence is a difficult and tedious laboratory process requiring an expensive apparatus, great precision and expertness on the part of the operator, and more than ordinary powers of observation on the part of the patient.

Fortunately, for ordinary office practice, such exact measurements are not necessary; but decidedly more accurate work is required than it is possible to accomplish with the usual test-card and tape measure.

The apparatus herewith presented was devised to meet the ordinary office requirements, and is commended as an inexpensive, easily operated appliance combining all the essential desiderata for measuring *accurately* the amplitude of accommodation and convergence, and *approximately*, the relative range of accommodation and convergence.



A practical ophthalmodynamometer for office use.

The median bar measures 50 cm. and carries three scales, one in centimeters and millimeters, a second in dioptries-meter angles, and a third, marked "Age in years" (Prince), on which the numbers at the divisions correspond to years. This scale in conjunction with the dioptric scale indicates the amount of accommodation that is normal at different ages from 10 to 50 years. A convenient nose-rest is attached to the proximal end of this bar, and it is also provided with a handle, enabling the patient to hold the appliance in position during the examination. It also carries the object-holder which is so constructed that it can be easily slid back and forth.

The test-object furnished with the appliance is a Prince card, on the back of which a 2 mm. dot has been stamped for measuring the amplitude of convergence.

The lens-holders are mounted on a graduated cross-bar and can be adapted to the pupillary distance by means of a screw of double rotation. In order to bring the lenses to about 13 mm. from the cornea, the carriers are set back 10 mm., and the rings are pivot mounted so that the plane of the lenses can be adjusted to the visual axis.

For ordinary clinical work, the data furnished by this appliance in combination with the standard trial lenses will suffice without further computation, but if a more accurate measurement of the relative range of accommodation is desired, it may be readily obtained by calculating the exact strength of each lens at its distance from the eye.

For all practical purposes the measurement of the relative range of accommodation will be found sufficient without resorting to the use of prisms for measuring the relative range of convergence, for it is well known that the positive side of the relative range of accommodation represents the negative side of the relative range of convergence, and the negative side of the relative range of accommodation represents the positive side of the relative range of convergence.

15 East Washington Street.

A PRACTICAL BONE-CLAMP

FRANCIS REDER, M.D., ST. LOUIS

It is not often that the aid of a special instrument is needed to adjust the ends of a fractured bone properly. There are, however, some fractures of the long bones, particularly of the femur, in which the powerful muscles with their enormous leverage may so hold the displaced fragments that it would appear almost impossible to bring them into their proper apposition. It is absolutely necessary to obtain a good apposition, and it is equally necessary that the axial center be established as near normal as possible.

These are the weighty points of Lane's operation, which elicits such highly successful results. Unless these conditions can be satisfactorily demonstrated, the operation must be looked on as a failure and the whole object becomes one of defeat.

The clamp shown in the illustration is the outcome of considerable study. It was the object to create an instrument

Bone-clamp for holding the bone-ends in apposition. A indicates cross-bar; B, screw part; C, handle; D, counter-prong; E, supporting prong.

that was practical and simple in construction, and one that would not be too much in the way of the surgeon.

The principal object borne in mind, however, was the construction of an instrument that could be insinuated under the fractured bone-ends with the least amount of traumatism possible. That this might be accomplished, the clamp is provided with a handle of sufficient strength to permit of a firm grasp, so that, whatever strength may be necessary for its insinuation, it can be exerted in a steady and fixed manner.

The clamp apparatus of the instrument is exceedingly simple, with no screws to complicate it. It is of sufficient strength to permit any force that may become necessary to be applied to maintain the fractured ends in apposition. To avoid misinterpretation of this instrument, however, I wish to emphasize that the purpose of this bone-clamp is not to force the fractured bone-ends into apposition, or to maintain them in apposition by force, but to hold the bone-ends in apposition after the surgeon has made the proper anatomic correction, and to permit the steel plate to be applied under the best possible advantage. A steel plate, applied while the ends of a fractured bone are being held in "position" by the force of a clamp—a faulty apposition and one not anatomically correct—could hardly be expected to compete with such a powerful instrument.

This instrument possesses commendable characteristics. It is a one-piece instrument. Its manipulation, on account of its construction, invites ease without rough handling of the tissues. The supporting prongs are so constructed that they cannot endanger any blood-vessels that might lie in the immediate vicinity of the broken bone; the counter-prong, attached to the screw part, will not impinge on any structures excepting those desired. It permits of the ready reception of the steel plate and holds it in place without interfering with the driving of screws. The cross-bar, should it be in the way, can be removed.

4629 Cook Avenue.

SYPHILIS, DIABETES AND SALVARSAN

J. RHODES LONGLEY, B.Sc., M.D., FOND DU LAC, WIS.

Unable to find any literature bearing on the salvarsan treatment for syphilis in a diabetic, I report the following case: The patient is a diabetic who has been under my treatment for the past two years. I mention this to dispel the idea that I had used salvarsan in a case wherein diabetes or glycosuria followed the syphilitic infection.

Patient.—Mr. M. called me Nov. 7, 1911, complaining of some peculiar cerebral seizures attended by dizziness, transitory aphasia and general weakness. Their exact nature was not clear. In the course of my examination there was revealed a sore on the penis which had ulcerated almost through the frenum. There was very little induration and in ten days with soaking in warm boric-acid solution it readily healed. December 5 the patient began complaining of slight sore throat, and a papular rash was present over the abdomen. On the 15th he returned with a general papular rash and other more marked symptoms of syphilis.

Treatment.—I prescribed a suitable diet for him and told him of the salvarsan treatment for syphilis. This he was anxious to try, for the two diseases were, he believed, too much for him to contend with mentally. Knowing that Ehrlich had advised that in complicated cases of syphilis salvarsan should be given with extreme caution, if at all, I hesitated about using it. After advising, however, with Dr. Herrick of Chicago, who stated that he believed it would not be dangerous, as arsenic often improved diabetics, I injected salvarsan intramuscularly on December 21, with the usual care as to asepsis.

Salvarsan, 0.6 gm., was suspended in 10 c.c. iodipin, and after painting the gluteal region with iodin I injected high up in the right gluteal muscle. The patient suffered practically no pain; he rested well that night. Pulse was slightly increased, and on December 23 he went home with rash almost gone.

Course.—December 26 he returned to my office with good color, increase in weight, no rash and throat in good condition. There was no induration in the gluteal region, nor had ulcerations and sloughs occurred. Immediately following the injection I placed him on inunctions of mercury.

The following was his percentage of sugar in urine:

December 21, before injection	.2
December 22	.2
December 23	.3
December 26	.8
January 4	1.3
January 16	.42

The salvarsan had very little effect on the sugar excreted, for this is about the percentage he had for the past two years. While its safety in all cases of syphilis occurring in diabetes is not proved by the experience with one patient, it is interesting to note that in this instance no harm followed its use.

40 South Main Street.

A CASE OF ACETONEMIA

E. O. HOUDA, M.D., CENTRALIA, WASH.

The patient, a boy, aged 15, had an acute attack of appendicitis on Jan. 17, 1912. He vomited a number of times and complained of being chilly; temperature was normal; pulse 80. There were colicky pains about the navel but very little over the appendix, even on deep pressure. The bowels were free. The next morning, after a restless night, the temperature was 101.5 F. and the pulse 90; there was pain over the appendix but that about the navel had disappeared. On the afternoon of the same day the temperature was 102; pulse

100. The boy was taken to the hospital and a gangrenous appendix removed under chloroform anesthesia. No pus or any evidence of peritonitis was found, and the wound closed without drainage. The operation lasted about thirty-five minutes. The patient, being rather restless when put to bed, was given ¼ grain of morphin. He slept all night and on awakening in the morning said that he was feeling fine. There was very little postoperative nausea, but at the end of forty-eight hours, during which time there had been no alarming symptoms and the temperature and pulse had been normal, the patient became very restless. His skin was of an icteroid hue and his breath had an ethereal odor. The restlessness was periodic; the patient would be quiet for a few minutes, then toss about in bed for two or three minutes and then become quiet again. This restlessness lasted all night and bromids, and finally, a few doses of morphin did not quiet him to any marked degree. There were no apparent signs of infection about the wound and the patient would not answer questions; he seemed to be in a dazed condition mentally.

On the morning of the 21st the restlessness had ceased and the boy was in a stupor. His color was distinctly jaundiced and the odor of his breath was of a strong peculiar ethereal character, resembling that of a diabetic *in extremis*. This odor could be readily noticed on coming within four or five feet of the bed. The kidney function was normal but the urine had an acetone odor and acetone was demonstrated chemically; there was no sugar. Venesection was performed and about 500 c.c. of blood were withdrawn and 500 c.c. of normal salt solution with 10 gm. of sodium bicarbonate injected. The patient did not rally after the injection and six hours later another section was done with a second injection with no results for the better and the boy died in coma with a temperature of 103 and a pulse of 140. Only a partial postmortem was obtainable, that of the abdominal cavity. The peritoneum was normal throughout; the field of operation was free from all signs of infection, but the liver was quite large and of a pale color.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

BACILLUS COLI VACCINE.—(See N. N. R., 1912, p. 210).

Parke, Davis & Co., Detroit.

Colon Vaccine.—This product is marketed in four bulbs. Each bulb contains 200 million bacteria sterilized with heat and ready for use. The package is marked with the date up to which the product should retain its full labeled strength.

GONOCOCCUS VACCINE.—(See N. N. R., 1912, p. 211).

Parke, Davis & Co., Detroit.

Gonorrheal Vaccine (Combined).—This product is marketed in four bulbs. Each bulb contains micrococcus gonorrheæ 500 million and staphylococcus albus, aureus and citreus 400 million bacteria, sterilized with heat and ready for use. The package is marked with the date up to which the product should retain its full labeled strength.

TYPHOID VACCINE.—(See N. N. R., 1912, p. 214).

Parke, Davis & Co., Detroit.

Typhoid Vaccine (Prophylactic).—This product is marketed in four bulbs. Each bulb contains bacillus typhosus 1,000 million bacteria sterilized with heat and ready for use. The package is marked with the date up to which the product should retain its full labeled strength.

STAPHYLOCOCCUS VACCINE.—(See N. N. R., 1912, p. 212).

Parke, Davis & Co., Detroit.

Furunculosis Vaccine.—This product is marketed in four bulbs. Each bulb contains staphylococcus pyogenes aureus 400 million bacteria sterilized with heat and ready for use. The package is marked with the date up to which the product should retain its full labeled strength.

ACNE VACCINE.—(See N. N. R., 1912, p. 210).

Parke, Davis & Co., Detroit.

Acne Vaccine.—This product is marketed in four bulbs, each bulb containing 100 million bacteria sterilized with heat and ready for use. The package is marked with the date up to which the product should retain its full labeled strength.

COMBINED BACTERIAL VACCINE.

Parke, Davis & Co., Detroit.

Combined Bacterial Vaccine.—This product is marketed in four bulbs. Each bulb contains 750 million bacteria of mixed streptococcus pyogenes, staphylococcus pyogenes aureus, staphylococcus pyogenes albus, staphylococcus pyogenes citreus, bacillus coli communis and diplococcus pneumonia, sterilized with heat and ready for use. The package is marked with the date up to which the product should retain its full labeled strength.

Therapeutics

HEXAMETHYLENAMINA, U. S. P.

DESCRIPTION

Hexamethylenamin is sold under various proprietary names; as for instance, urotropin, uratone, formin, aminoform, hexamin, cystamin, cystogen, etc. It is produced by the action of ammonia on formaldehyd, and occurs as colorless crystals which are without odor, and in watery solutions gives a slight alkaline reaction. It is very soluble in water (less than two parts) and quite soluble in alcohol (about ten parts).

Hexamethylenamin occurred as a chemical long before it was used as a drug by Professor Arthur Nicolaier, of Berlin, in 1894 and 1895, when he was chief of the medical clinic of the University of Göttingen. It was first used as an antiseptic in kidney and bladder infections; later to destroy typhoid bacteria in the urine, and still later it was found to be of value in phosphaturia. It was first thought that it would act as a solvent of uric acid calculi, but this was soon disproved.

SYSTEMIC ACTION

This drug has no local action, and therefore is not used externally. When taken into the stomach it is absorbed rapidly, and its excretion through the kidneys begins rapidly. It has no effect on the circulatory and nervous systems, and does not seem to cause general poisoning. It has not been shown that it has very strong action as an intestinal antiseptic, except that some of it may be excreted, after absorption, into the colon.

While just what becomes of the whole of the hexamethylenamin in the body has not been determined, it is known to be largely excreted in the urine, and has been found in the blood, in the gall-bladder, in the pancreatic juice, in the middle ear, in the serous fluids of the cerebrospinal axis, and it has lately been shown that it is probably excreted into the various mucous membrane cavities or sinuses associated with the nose and throat. It has been shown that it is excreted into the pleural cavity, and into the synovial fluid of the joints (Crowe: *Johns Hopkins Hosp. Bull.*, 1908, xix, 109, and xx, 102), and into the sputum of patients suffering from bronchitis, pneumonia, pulmonary tuberculosis, and even asthma. (Armstrong and Goodman: THE JOURNAL A. M. A., May 27, 1911, p. 1553.) Its value lies in that it breaks up in the tissues and thus formaldehyd is liberated.

The excretion into the urine begins quickly, but if several doses have been taken, it may not be fully excreted for several days. Part of the drug is excreted unchanged, but during the course of its excretion, under the influence of acids or acid salts, a large part is decomposed and formaldehyd liberated, as above stated. Even after small doses of hexamethylenamin, its presence may be shown in the urine if bromin water is added to it, it causing an orange-yellow precipitate. This precipitate is a dibromid of hexamethylenamin. The drug may be found in the urine in less than half an hour after it has been ingested, and after a single dose of 1 gram, its presence may be demonstrated in the urine for more than twenty-four hours.

While it was first stated that continuous large doses could be given without causing any ill effects, it was soon found that even 1 gram (15 grains), administered three or four times a day, could cause considerable kidney and bladder irritation. On the other hand, an albuminuria may become less, and an irritable bladder from a preceding inflammation may become less irritable. During its administration, however, if it seems advisable to give large doses, any symptoms of urinary irritation should be quickly noted, and the dose should be immediately reduced or the drug temporarily stopped if such irritation is caused.

There is no question but that probably most germs that are likely to reach and infect the kidneys, ureters, and bladder, or may develop in these parts are killed, or more or less completely eradicated by the administration of this drug. Ammoniacal fermentation is stopped, and inflammation of the mucous membrane of the bladder becomes improved from the administration of hexamethylenamin, the urine becoming clear and acid. At times the drug seems to cause diuresis, i. e., an actually increased amount of urine is passed. It is often a successful treatment, and sometimes the only successful treatment of phosphaturia, or an excess of phosphates in the urine. That it can prevent the deposition of uric acid crystals is perhaps a fact; that it dissolves uric acid after calculi have been formed, however, is probably doubtful.

It has positively been shown that it can soon cause destruction of many bacterial infections of the gall-bladder. Of course, it could not cure a chronic cholecystitis. It makes, however, the most successful medicinal treatment after operative treatment of cholecystitis (Crowe, S. J.: *Johns Hopkins Hosp. Bull.*, 1908, xix, p. 109).

In certain instances in which it seems advisable, it has been given continuously for months, and sometimes even for several years without causing harm, provided the dose is not large. It seems almost positive that it cannot cause chronic poisoning or degeneration of tissue. This has been proved not only clinically, but also experimentally.

It has lately been advised to administer the drug hypodermatically, and when so administered it has been found in the blood. In animals it has been shown that large doses so administered may cause congestion of the stomach mucous membrane and hemorrhages into the mucosa, with possible ulceration. It also is shown that large doses may cause necrosis of the tissue at the point of injection. If the dose is not large, the animal will recover. This shows that there is no real permanent organic lesion. Small doses may be well tolerated (Frothingham, Channing: *Arch. Int. Med.*, November, 1909, p. 510).

ACTION OF A THERAPEUTIC DOSE OR THE PRIMARY PHYSIOLOGIC ACTION

The only noticeable effects of an ordinary dose of hexamethylenamin are the slight odor of formaldehyd in the urine, the rendering of alkaline urine acid, and general improvement in the character of a urine that is pathologic from genito-urinary inflammation. The first symptoms of overaction are a slight irritation of the stomach and bladder, irritability or a too frequent desire to urinate.

TOXIC SYMPTOMS

Unless the dose administered were very large, real toxic symptoms would probably not occur from this drug. If it were to cause severe poisoning, however, the symptoms would be gastric irritation, diarrhea, some abdominal pain, some pain in the back denoting kidney congestion, excessive irritability of the bladder, with strangury, and possibly some hematuria or hemoglobinuria. There may also be, from the intestinal irritation, an eruption on the skin, urticarial in character.

As above stated, while one may treat many patients with ordinary doses of hexamethylenamin without undesired symptoms occurring, not infrequently there seems to be an idiosyncrasy against it; in other words, in such patients gastric irritation is readily caused, and albumin, casts, and a small amount of blood may occur in the urine.

The treatment of poisoning by hexamethylenamin is, of course, withdrawal of the drug; the administration of castor oil or some saline laxative; the administration of subcarbonate of bismuth; plenty of hot water, oatmeal gruel or barley water; withholding of all food except milk; hot baths to relieve the kidney congestion, frequent sitz baths, or hot fomentations to the back; a small dose of morphin with atropin, given hypodermatically, if deemed advisable for strangury, or a suppository of these drugs may be used. Such treatment will probably cure the condition.

If the kidneys are normal, in other words, if there is no chronic nephritis and no serious acute nephritis, the hexamethylenamin will be entirely excreted in from twenty-four to forty-eight hours.

In ordinary doses hexamethylenamin will very rarely cause an albuminuria. If there is chronic interstitial, perhaps latent, nephritis, however, this drug may cause such albuminuria. On the other hand, if chronic nephritis is present, with albumin and casts, and a positive indication for the use of hexamethylenamin exists, as pyelitis or cystitis, or meningitis due to an infection, the drug should be used, and the albuminuria may not only not be increased, but may be diminished.

THERAPY

This drug has proved of very great value in the treatment of inflammations of the genito-urinary tract. Pyelitis from all causes, cystitis, prostatitis and general urethritis are all benefited, and pyelitis and cystitis may be cured by the more or less continued use of hexamethylenamin. If there is tuberculosis of a kidney or a calculus in the kidney or bladder, of course it should be surgically removed, but preceding the operation and for some time after the operation hexamethylenamin should be administered. If there is albumin in the urine, showing possible disturbance of the liver parenchyma, the dose must be small. Under any conditions in which the drug is to be given for some time the dose should be small; 0.5 gram (7½ grains) three times a day, or 0.3

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gram (5 grains) four times a day should be considered a fair dose, and should even at this dose be gradually reduced. One gram (15 grains) should always be considered a good-sized dose, and where the reason for the use of this drug is a chronic condition there is no excuse for the administration of large doses.

Hexamethylenamin is not so irritant to the kidneys as is phenyl salicylate (salol), and is more efficient as an antiseptic. Salicylic acid is somewhat of a genito-urinary antiseptic, but not very efficient. Copaiba is a very weak genito-urinary antiseptic; turpentine somewhat better, but more irritant than hexamethylenamin; and santal oil has a slight antiseptic action.

It has been shown that when hexamethylenamin has been administered the urine may reduce copper solution and cause the suspicion of glycosuria. It does not ordinarily, however, reduce bismuth solutions, and never responds to the ferment test for sugar or to the polarizing test (Abt, I. A.: *Arch. Pediat.*, April, 1907).

If there is a large amount of mucus in the urine from a prostatic irritation, without a real cystitis, the urine becomes more or less irritant and, perhaps, soon is less acid and later is alkaline. Hexamethylenamin, by its ability to keep the urine acid and free from germs, will aid in preventing a cystitis, and even may aid in curing the prostatic irritation.

In gonorrhea anything that will keep the urine and the bladder, and perhaps the posterior urethra, free from germs, without causing harm, is certainly good treatment. Therefore, from the beginning of gonorrhea, hexamethylenamin should be administered, perhaps best in frequent small doses, never more than 0.3 gram (5 grains) four times a day, and perhaps even less. Before and after any instrumentation of the urethra, bladder or ureters, it is good treatment to give hexamethylenamin.

In phosphaturia hexamethylenamin is sometimes the only successful treatment; and phosphaturia, if continuous, is serious for the reason that it causes irritation of the bladder, soon a subacute cystitis, and also gives the impetus to the formation of phosphatic calculi, if mucus or other nuclei for such are present.

It has been a question whether during typhoid fever hexamethylenamin should be administered or not. It has not been shown that this drug will render the region of the intestinal inflammation less prolific in bacteria. However, with the knowledge that typhoid bacilli can migrate to the gall-bladder and the kidney, to say nothing of circulating in the blood, there would seem to be a positive indication for the administration of hexamethylenamin, but in such small doses as to preclude the possibility of causing kidney or gastric irritation. Typhoid bacilluria has been stopped by the administration of hexamethylenamin. Typhoid carriers have been cured by the administration of this drug. Therefore, it seems wise to prevent typhoid germs appearing in the urine rather than to wait and then cure the condition. The dose during typhoid fever could well be 0.2 gram (3 grains) given once in four hours for the first few days, and then once in six hours, and continued throughout the fever and even through the convalescence, unless there is some reason to stop the drug. Of course the frequency of the dose could be diminished to twice a day if it seemed advisable.

In gall-bladder inflammation, whether due to colon bacillus, the typhoid bacillus, or some streptococcic infection, hexamethylenamin is the proper treatment as soon as the diagnosis is made, and for some time after operative interference, if such is necessary.

It seems wise to administer hexamethylenamin during all middle-ear inflammations (otitis media), both acute and chronic.

It has lately been advised that in ordinary colds, influenza colds, or other throat and nose infections, hexamethylenamin is good treatment. The attacks many times seem to have been shortened by its use. The dose in an acute rhinitis, tonsillitis, or middle-ear trouble should probably be large at first, i. e., 0.5 gram (7½ grains) every three hours for five or six doses; the frequency of the dose should then be diminished. Whether this treatment is valuable in bronchitis has not yet been positively shown, but it seems to be good treatment.

In pneumonia it has not been shown to be of much value (Shattuck, F. C.: *Boston Med. and Surg. Jour.*, June 15, 1911), and in pulmonary tuberculosis it is still a matter for more clinical investigation.

Whether this drug will prove of value in acute rheumatism, it seems certainly good treatment for infected joints. It would also seem good treatment in malignant endocarditis.

Whatever else we do, whether by an antitoxin or by medicinal treatments, any meningitis, whether from typhoid fever, pneumonia, cerebrospinal fever, anterior poliomyelitis, or from mastoid inflammation and danger of a local meningitis, hexamethylenamin should probably always be administered. In such serious infections the dose should probably be temporarily large, perhaps 1 gram (15 grains) every four hours for several doses; then the amount should be reduced.

Before all operations on the head or on the spinal canal it is well to give hexamethylenamin for a day or two.

ADMINISTRATION

The average dose of hexamethylenamin is 0.5 gram (7½ grains), given perhaps two or three times in twenty-four hours, but the exact size and frequency of the dose depends on the condition present. The drug should always be taken dissolved in water and largely diluted. It should never be swallowed as a powder or tablet or in a capsule: 0.3 gram (5 grains) should be dissolved in at least half a glass of water, while a larger dose should be dissolved in a full glass of water.

As above stated, while some patients are susceptible to this drug, and others can only take it a certain length of time without some symptom calling for its cessation, other patients may take the drug for months and even years without any disturbance whatever.

It is probably not advisable to use this drug hypodermatically, although it has been so used (Gundrum, F. F.: *California State Med. Jour.*, July, 1911).

Helmitol, the methylene citrate of hexamethylenamin, has not been shown to be of any greater value, i. e., to liberate any greater amount of formaldehyd, than the straight hexamethylenamin.

He Is Certainly Liable to Be Ill.—A medical certificate, recently given, read as follows: "To Whom it May Concern: This is to certify that I the undersigned this day visited Mr. ————, and find him suffering from the following complaints: chronic articular rheumatism, hemorrhoids, fistula in ano, chronic gingivitis, chronic otitis media, cystitis, angina pectoris, arteriosclerosis, frontal sinusitis, atrophic rhinitis, myalgia. I believe he will be ill and confined to bed or should be for two weeks when he will not be well but may be able to work." This certificate, signed by a physician, would seem to give some ground for the fear that the man might be in danger of feeling somewhat indisposed.

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[*For other information see second page following reading matter*]

SATURDAY, APRIL 20, 1912

THE NUTRITIVE VALUE OF INORGANIC PHOSPHATES

For many years there has been a wide-spread tendency to assume a better physiologic utilization of certain inorganic elements when they are furnished in the form of organic combinations. This has found expression in the domain of therapy in current preferences for preparations in which iron, phosphorus, calcium and other elements are reputed to be combined or masked in the nature of "organic" compounds. Certain experiments on record have been interpreted to speak in favor of this; but for the most part it must be admitted that there has been little really competent evidence in relation to the whole matter. We have been accustomed so long to question the synthetic or constructive powers of the animal organism that there has been a natural impulse, as it were, to hesitate to believe that inorganic compounds can be built up into blood and muscle and bone with the same readiness as are "organic iron" or "organic phosphorus" and the like. This point of view, based more largely on belief than on actual knowledge, has been fostered by manufacturers to such an extent that "organic" preparations of some of the elements are in high favor at the present time.

In the face of this situation, on the other hand, a stream of evidence is pouring in with respect to the synthetic capacity of the body. Interesting illustrations of this are available in the case of the formation of organic phosphorus compounds from inorganic phosphates. The underlying problem here is expressed in the question: Can lecithins (phosphatids) and nucleoproteins and phosphoproteins (like the casein of milk or the vitellin of eggs) be constructed *de novo* from inorganic compounds of phosphorus by the animal cells? Here again the agricultural experimenters, whose scientific enthusiasm and energy are at times treated with poorly concealed indifference on the part of medical men, have led the way. In Germany, for example, Fingerling[1] has shown that ducks can form lecithins, nucleoproteins and other phosphorus-containing compounds quite as readily out of inorganic phosphates as from organic phosphorus compounds. The animals were fed on dietaries so selected as to furnish little, if any, of the latter; and then they were allowed to lay eggs, which are notably rich in the organically combined phosphorus of the yolks. Phosphates were, of course, fed, and the eggs continued to be furnished in the usual quantity and quality for long periods. Similar experiences have lately been reported by McCollum and Halpin,[2] who showed that lecithins are readily formed by hens when fed rations free from these substances.

These facts, to which others might be added[3] point unmistakably to the ease with which animals can utilize the inorganic phosphates for synthetic purposes. To the physician they emphasize the caution which ought to be exercised in ascribing subtle or unproved advantages to a host of organic compounds like lecithin and glycerophosphates, the rôle of which is still so largely uncertain.

1. Fingerling, G.: Die Bildung von organischen Phosphorverbindungen aus Phosphaten, Biochem. Ztschr., 1912, xxxviii, 448.

2. McCollum, E. V., and Halpin, J. G.: Synthesis of Lecithins in the Hen, Proc. Am. Soc. Biol. Chem., 1911, Jour. Biol. Chem., 1912, xi, xiii.

3. Wendt: Skand. Arch. Physiol., xvii, 211; Holsti: ibid., xxiii, 143; Hart, McCollum and Fuller: Research Bull. 1, Univ. Wisc. Agric. Exper. Sta., 1909; Gregersen: Ztschr. physiol. Chem., lxxi, 49; Lipschütz: Arch. f. d. ges. Physiol. (Pflüger's), cxliii, 99.

AMERICAN TYPHUS AND BODY LICE

The recent announcement[1] of the demonstrated identity with typhus fever of the symptom-complex called Brill's disease, has renewed interest in that old-fashioned disease which had become so rare and apparently was so thoroughly under quarantine control as to be quite negligible in this country. The main differential diagnostic signs are the rapid development and the almost critical ending of typhus and the fact that the eruption is distributed on the extremities and occurs occasionally even on the palms and soles. Justifying the name of "typhus," which in the Greek means a mist or cloud, and hence a mind-beclouding stupor, the apathy and prostration begin early in typhus. They are of much later development in typhoid.

More interesting than even the discovery of the occasional presence of typhus unsuspected among us is the mode of distribution of the disease. It has been experimentally demonstrated that typhus may be given to monkeys by the bites of body lice which have previously bitten human patients suffering with the disease or monkeys which have been infected with it in the laboratory. *Public Health Reports* (U. S. P. H. and M.-H. S.) declares that "it seems likely that the body louse is probably the usual distributing agent by which the disease is carried from individual to individual. Observation seems to show almost beyond doubt that typhus fever is not spread by fomites or by direct contact with the patients suffering from the disease unless the contact is of such a kind that the exchange of body lice become possible." In the light of this modern demonstration some well-known traditions with regard to the intense contagious-

1. Anderson and Goldberger: Pub. Health Rep., Feb. 2, 1912, p. 149. Demonstration of the Identity of the So-Called Brill's Disease with Typhus, THE JOURNAL A. M. A., Feb. 10, 1912, p. 414.

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ress of typhus gain additional interest. In old times typhus was called jail-fever or ship-fever, evidently because of the opportunities for the spread of the disease afforded by the intimate living conditions necessitated by the small crowded ships and jails of those days. A number of stories are told of judges, lawyers, jurymen and spectators being stricken with the disease within a day or two after prisoners suffering from typhus were brought into court. We can only conclude from our present knowledge that in the crowded stuffy conditions of the old-time court-rooms it was not impossible that body or clothing lice found opportunities to pass from prisoners to more promising food material.

The feeling of instinctive revulsion against parasites of all kinds which characterizes humanity generally, and which is due to something much more than the mere pain or annoyance that their bites might inflict, becomes more interesting as further discoveries show the rôle of such insects in the spread of disease. Unfortunately this natural abhorrence has not been enough to protect man under conditions of poverty and uncleanliness from harboring such parasites, and now those who understand how much more than a mere personal annoyance is in question from the existence of parasites must take up the problem of eradicating them. The possibility of the bedbug conveying relapsing fever, typhoid and leprosy, has been suggested and apparently there is no insect pest of man that may not be a mode of disease conveyance. Flies, fleas, mosquitoes and bugs—not only are all under suspicion, but most of them are also actually demonstrated as ordinary and frequent conveyors of diseases of various kinds. Evidently health authorities must now take up the problem of getting rid of noxious insects quite as seriously as that of preventing the growth and distribution of pathogenic bacteria.

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THE REPORT OF THE ROYAL COMMISSION ON VIVISECTION

The appointment of the second Royal Commission on Vivisection in 1906 was not regretted by the medical investigators of England, for they welcomed the opportunity it offered to present prominently the results of animal experimentation which had been obtained since the first commission reported thirty years before. The investigators were not disappointed in their anticipations. During the first eighteen months the commission held over seventy meetings at which every aspect of medical and surgical progress and every shade of anti-vivisectionist opinion was presented by representatives of the two parties concerned. The minutes of evidence, comprised in nearly 22,000 questions with answers, in five huge reports, are a mine of information on the subject. After four years of consideration of this array of testimony the commission has at last reported.

After an account of the British act of 1876 and its administration, the report refutes in detail criticisms of the act by two somewhat notorious antivivisectionists whose visits to this country will be remembered — the Hon. Stephen Coleridge and Miss Lind-af-Hageby. Mr. Coleridge made twelve specific charges against the present legislation and its enforcement. The commission says: "These twelve charges are the outcome of a ten-years' investigation of the administration of the act by the department, conducted by an acute and indefatigable critic, supported, as he told us, with ample funds." But the commission concludes: "We are of the opinion that, on the whole, the working of the act has been performed with a desire faithfully to carry out the objects which its framers had in view."

Miss Lind-af-Hageby's harrowing story of the rabbit she saw in Waller's laboratory, placed in a "freezing machine" and "frozen stiff, like a piece of wood," was investigated by the commission, which found that the lowest temperature to which the animal was subjected was 45 F.! Inasmuch as the animal was described also as "springing back with all signs of terror" when it was removed from the "freezing machine," the wooden stiffness was purely rhetorical. Another heart-rending tale by this romancer concerned a marmot with spinal cord "divided by a vivisector." On investigation the commission found that Miss Hageby had erroneously ascribed to paralysis the state of paraplegia incident to partial recovery from hibernation. No operation whatever had been performed on the animal.

After careful consideration of these and other cases, the commission says: "We have come to the conclusion that the witnesses have either misapprehended or inaccurately described the facts of the experiments."

The laboratory workers are commended as follows: "So far as we can judge, we believe that holders of licenses and certificates, with rare exceptions, have endeavored with loyalty and good faith to conform to the provisions of the law." And the report continues: "We desire further to state that the harrowing descriptions and illustrations of operations inflicted on animals, which are freely circulated by post, advertisement or otherwise, are in many cases calculated to mislead the public, so far as they suggest that the animals in question were not under an anesthetic."

Following this discussion of the existing law and its critics, a section of the report is devoted to the progress of medicine as dependent on animal experimentation. Although many of the statements are undisputed, it is perhaps advantageous to have them expressed, for they give official assent to the claims of the medical witnesses that experiments on animals have played an essential rôle in the revolution in medicine and surgery during the past sixty years. "Having regard to the witnesses who have appeared before us," the commissioners declare, "and to the evidence which we have received, there can be no doubt that the great preponderance of the medical and scientific authority is against the opponents of vivisection."

The moral question involved in experiments on animals is dealt with in one of the most interesting sections of the report. In no feature did the argument of the antivivisectionists differ so greatly in 1906 from what it was in 1876 as in the emphasis on the moral wrong of the practice. They seemed to realize that utter rout would result from serious questioning of utility, and therefore took higher ground. One of them stated, "I would not have one mouse painfully vivisected to save the greatest of human beings, or the life dearest to me." The commissioners, however, seem not to have been greatly impressed by these views. Basing their judgment on the "average moral sense of Christian communities," which is "not offended by the sacrifice of lower animals for the food, clothing, adornment and, within limits, the sport of man," they conclude that "experiments on animals, adequately safeguarded by law, faithfully administered, are morally justifiable and should not be prohibited by legislation." The only modification of this dictum in the report is the subsequent intimation that some of the commissioners would favor eliminating dogs, cats and anthropoid apes from experimentation. Such a course, pursued during the past twenty years, would have prohibited some of the most illustrious and valuable researches in the history of English medicine.

The recommendations made by the commission are insignificant: they include an increase in the number of inspectors from two to four; an unimportant restriction in the use of curare; precautions against pain after operations, and a change in the advisory body for the Home Office. The report and the recommendations are signed unanimously by the eight commissioners; but three of them also present memoranda which, while not affecting the main features of the report, express certain personal reservations. The recommendations fortunately are within the province of the Home Office, and do not require action by Parliament.

The lay press, in commenting on the work of the commission, has, almost without exception, regarded the conclusions as strongly justifying the experimental use of animals, and as giving the antivivisection cause a serious setback. Mr. Stephen Coleridge, on the contrary, rises complacently from the chastisement which he receives, and proclaims the report "a striking and triumphant vindication of the struggle carried on by the National Antivivisection Society for the last fourteen years"! As usual, the agitators are at odds, and Mr. Sidney Trist, of the London and Provincial Antivivisection Society, states that the report must be regarded as "justifying the worst fears of the antivivisectionists."

Happily, the petty quarrels of these malignant critics do not disturb the progress of medical science. As an interesting comment on the rapidity of that progress, it may be noted that the report has nothing to say of antimeningitis serum, of experimental proof of the nature of poliomyelitis infection, of the results of antityphoid inoculation in the United States Army, or of the discovery and use of salvarsan. All these contributions of animal experimentation to practical medicine were too recent to be brought before the commission, and none was utilized in the decision which that body reached. Truly the way of the antivivisectionist is becoming daily more difficult.

IS CERTIFIED MILK SAFE?

Certified milk is used chiefly for infant-feeding and for invalids and should be absolutely above reproach. The occasional occurrence of epidemics spread through the use of certified milk brings up the question whether or not the regulations for its production prescribed by the medical milk commissions are really far-reaching enough. Medical milk commissions attempt not only to control the production of milk by prescribing the manner in which the dairy is to be equipped and the regulations for handling and shipping the milk, but also to exclude pathogenic bacteria by periodical examinations of employees in the dairy and by binding the producer by contract to report outbreaks of contagious diseases among his employees. The safety of certified milk, therefore, depends on the honesty, intelligence and circumspection of the producer and on the findings of the medical examiner.

The isolation of the pathogenic bacteria from milk is a difficult problem. They are relatively scarce in proportion to the total bacteria content of milk and are easily overlooked. Considerable time is necessary to determine their presence and consequently routine examination is useless.

It is customary to have one medical examination each month of employees of dairies producing certified milk. Change of personnel may take place during the intervening time. New employees may be in the incubation stage of some infectious disease, such as typhoid fever or diphtheria, or may have recovered from these diseases recently and may be carriers of infection. It is obvious that chronic or intermittent germ-carriers may infect the milk before medical examination under the present system can exclude them.

The quantity of certified milk sold is probably less than 0.5 per cent. of the total amount of milk consumed. One epidemic caused by certified milk would, therefore, bear the same relation to the total amount of certified milk produced as two hundred epidemics to the total milk-supply. Just what proportion of epidemics the use of certified milk saves there are no statistics to show, but the lessening of general morbidity among infants, who consume most of the certified milk, must be considerable.

Sanitary, medical and veterinary inspection under contracts with medical milk commissions involves much expense, which is borne by the dairies, and the requirements in the way of equipment demand the investment of large sums of money. Regulations concerning the food of the cows are also exacting. All of this makes

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the expense of producing certified milk high. A maximum of 10,000 bacteria per cubic centimeter is the limit set by the milk commissions and it has been found that milk with less than this maximum can be produced by proper care with comparatively inexpensive equipment. It will, therefore, be seen that without compelling producers to go to large expense in providing equipment much could be accomplished by giving more attention to medical inspection and methods in production.

Medical inspection should be accompanied by bacteriologic examination for germ-carriers among the employees. The majority of bacteria occurring in milk are harmless. A milk with a few typhoid germs is more dangerous than milk with large numbers of harmless germs. This fact is sometimes lost sight of in the rivalry of dairies to produce certified milk with low bacterial content. This raises again the question of attempting to secure safety by pasteurization of all milk.

The leaders of the certified milk movement recognize the deficiencies of the present methods and are endeavoring to throw more safeguards around production. It is hoped that at the coming meeting of the American Association of Medical Milk Commissions a thorough revision of the conditions imposed on dairies will be considered and that more stress will be laid in the future on methods of production and medical and bacteriologic examination of employees. Much of the present expense of equipment could thus be eliminated.

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BOOKS AND BACTERIA

What we are pleased to call modern civilization brings with it an almost endless number of perplexing problems which the conservators of public health and general welfare are condemned to face. The public school and the public library have come to stay; and they have brought with them the public book, an acknowledged carrier of contagion and disseminator of disease. The day has gone by when the guardians of health can afford to overlook these facts, despite the indifference with which they are regarded by many people. Was it not yesterday that a poorly concealed sneer greeted the crusade against spitting in public places? Yet who will deny that an unremitting campaign of education has brought about a decided change in public sentiment and a distinctly sympathetic attitude in such matters?

Need we recall the danger of contamination involved in the ordinary handling of books? Doubtless an element of undue exaggeration has often entered into the consideration of the spread of sickness by such modes. Dr. A. H. Doty is reported to have said: "It is fortunate that money constitutes such an unimportant factor in the transmission of disease, as nothing could be more farcical, from a sanitary point of view, than to attempt to disinfect it, although this has been seriously proposed. It is important that those who have given this subject careful investigation should aid in the education of the public, in order that they may have a proper understanding of the matter and not be alarmed by sensational literature on the subject."[1]

Notwithstanding this, the numerous attempts to secure a suitable method of disinfecting books bear witness to the recognized dangers which it is intended to avert thereby. Books are known to have infected people with septicemia and tuberculosis as letters have carried scarlet fever and small-pox. Dr. L. B. Nice[2] has made an extensive inquiry regarding the disinfection of contaminated school and library books among the boards of health of all the states and all cities with a population over 100,000. He reports that only nine states and twenty-five cities — those which burn and those which use steam, which likewise destroys — are taking proper precautions in regard to the danger of infection from scarlet fever, diphtheria, small-pox and occasionally measles. This is being done, however, at the sacrifice of the books. A significant fact is that "not one of the one hundred letters mentioned tuberculosis."

As a result of experiments on this subject Dr. Nice has recommended the use of moist hot air at 80° C. and 30 or 40 per cent. humidity for thirty-two hours. This is alleged to destroy all non-sporing bacteria in closed books, even tubercle bacilli in thick layers, without injuring the most delicate bindings. It is suggested that as a matter of precaution, especially against tuberculosis, it would be well if public library books that are much in use and all school books were disinfected by this method at regular intervals. Whether "boards of health should make daily reports to the schools and libraries of all contagious diseases, including small-pox, measles, whooping-cough, scarlet fever, typhoid, erysipelas, dysentery, diphtheria, venereal diseases and tuberculosis," as Dr. Nice advocates, we leave to these already overworked officials to decide. Public school books should, perhaps, always be disinfected before they are given out to a new set of pupils. The lack of a really satisfactory method has hampered progress heretofore.

NEW SUGGESTIONS REGARDING ECLAMPSIA

"Eclampsia is the disease of theories," says Zweifel. The advent of one more explanation of its causation may, therefore, awaken little confidence in the prospect of an adequate solution. Have we not listened to the arguments about perverted metabolism in eclampsia, the possibility of bacterial invasions, the upset of some hypothetical internal secretion, or that vague uncertainty known as auto-intoxication? Nevertheless, the outlook is so serious and the problem so difficult that we may properly welcome any addition to the list which promises some potent advance in our knowledge of the eclamptic state. An interesting possibility has been suggested by investigations conducted at the Kentucky Agricultural

1. Hilditch, W. W.: A Bacteriologic Study of Soiled Paper Money, Pop. Sci. Monthly, 1908, lxxiv, 164.
2. Nice, L. B.: The Disinfection of Books, Pedagogical Seminary, 1911, xviii, 197

Experiment Station[1] in relation to the condition known in veterinary medicine as the parturient paresis or milk-fever of cows, which develops suddenly in heavy milkers after calving.

Healy and Kastle, who conducted these studies, have become thereby more and more convinced that there is a marked similarity between the milk-fever of cattle and human eclampsia. The symptoms, in so far as comparisons can appropriately be made, are quite similar and in each case parturition plays the most important rôle.

A hint as to the possible causes of both of these conditions is given by the entire success of the modern veterinary treatment of milk-fever — a therapeutic advance which has almost completely abolished the mortality from the disease and has greatly facilitated a speedy recovery. It consists in acute dilatation of the udder by means of suitable liquids or gases. Originally introduced on the hypothesis that an infection of the udder was to be combated, the injections of antiseptic solutions have been replaced by those of bacterially inert agents with equal efficiency. Injections of oxygen or sterile air are now commonly employed. Healy and Kastle believe, in view of these facts, that the success of the modern treatment is due to preventing, by pressure, the absorption of a toxin elaborated in the udder as the result of its own metabolism preceding normal milk production. The intense physiologic activity which is suddenly awakened in the mammary glands may easily be conceived to give rise to a great variety of disintegration products of varied chemical character which may be absorbed into the circulation, precisely as milk-sugar is known to return into the organism in this way at the beginning of lactation. Kastle and Healy remark:

"In the present state of our knowledge it is of little moment whether we call the substances other than milk resulting from the sudden disintegrative changes occurring in the udder at, or about the time of parturition, leukomains, alkaloids, toxins or what not. It seems reasonably certain, however, that no gland of the size and physiologic activity of the udder of a heavy milking cow but must contribute largely and sometimes malignantly to the internal secretions of the animal."

The attempt to test this hypothesis has furnished some interesting experiments. The first colostrum obtained from cows during an attack of parturient paresis has been found to exhibit severely toxic effects when injected into other animals, in contrast with the relative inertness of fresh milk or colostrum from normal cows. The post-mortem and microscopic examinations of the organs of guinea-pigs killed by injections of the colostrum of a cow known to have milk-fever are reported to show the same pathologic degenerations and changes that are characteristic of eclampsia.

1. Healy, D. J., and Kastle, J. H.: Parturient Paresis and Eclampsia; Similarity Between These Two Diseases, Jour. Infect. Dis., 1912, x, 226; The Toxic Character of Colostrum in Parturient Paresis, ibid., p. 233.

If, as is here assumed, the current treatment of milk-fever by extreme inflation of the udder accomplishes its cure by shutting off entirely or largely the blood-supply of the milk-gland until it has the opportunity to resume its ordinary excretory activity, thereby eliminating the toxic product in the colostrum and milk, an application to human therapy obviously suggests itself. The harmful products must be kept out of the blood-stream. These studies are in their beginning; hence in quoting the suggestions of the Kentucky investigators we are mindful of the extreme reserve with which they must be stated.

"We are of the opinion," Healy and Kastle conclude, "that eclampsia is due to a similar toxin [i. e., similar to that of milk-fever in cattle] elaborated by the breast in a similar manner, and would strongly recommend, as the most promising treatment, dilatation of the breasts with oxygen or sterile air, accompanied by vigorous massage of the breasts, or forcible compression of them by means of a properly applied bandage, at the same time using whatever medical measures may be indicated. We ourselves shall thoroughly test this method of treatment as soon as the opportunity occurs."

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Current Comment

A PENNSYLVANIA REPORT ON CHEAP CONFECTIONERY

A report which shows that good work is being done in some states in the examination and improvement of food products is that of Charles H. Lawall,[1] in behalf of the dairy and food division of the department of agriculture of Pennsylvania. Lawall gives a tabulated account of the results of his chemical analyses of over 250 samples of cheap confectionery obtained from all parts of the state. He confined his research to such substances as are specifically prohibited by law, and did not take up the question of the relative quantities of sucrose, dextrose, etc. Only four samples were found containing substances prohibited by law, and, so far as harmful ingredients are concerned, Lawall believes that the penny candies, largely consumed by children, are of comparatively safe quality in Pennsylvania. The candy, however, is often filthy and therefore unwholesome. In many instances the retailer is to blame for this because the candies become contaminated with dust through exposure. Occasionally goods were found in the unopened package, purchased from the jobber, in a very filthy condition. Cheap gelatin and glue, the latter occasionally of very offensive quality, were found in some samples. Competition has induced manufacturers, in order to give as large an amount for the money as possible, to concoct mixtures of sugar, gums, starches and flours, gelatin and water, which, while not objectionable as individual ingredients, when combined, form tenacious, indigestible masses. Lawall believes that the practice of combining toys with candies should be discouraged, as they are

1. Bulletin 216, Penna. Dept. Agri., Dairy and Food Division.

often played with by children before being eaten and accumulate a large amount of filth with consequent danger of various infections. The use of the so-called "ethereal" flavors and resinous glazes is diminishing. While there is a marked improvement in the quality of cheap candies, according to the bulletin, the quality of some of the ingredients is not yet what it should be. Probably the worst feature found was the filthy condition of about 24 per cent. of the samples, an easily preventable condition. It is recommended that manufacturers be compelled to wrap candies in paraffin papers, as is now done in some instances.

SILICA IN METABOLISM

It is commonly assumed that silicic acid is one of the substances which is present in small amounts at most among the inorganic constituents of higher animal organisms. Silica occurs familiarly as a constituent of plant structures; but owing to its tendency to form insoluble compounds the element silicon has not been looked on as playing any conspicuous part in human metabolism or of entering in any noteworthy form into the composition of the tissues. The urine has been supposed to carry at best only traces of silica eliminated through the kidneys. The question of the extent to which comparatively insoluble components of the food intake ordinarily enter into the circulation is an interesting and important one. Some insoluble compounds are rendered sufficiently soluble by the acid gastric secretion to account for the possibility of ready absorption. Silica has usually been looked on as one of the group of substances which pass through the alimentary tract as unutilized refuse. The lack of more accurate actual data on the subject must be charged to the difficulties involved in the exact quantitative estimation of silicon and the analytic errors inherent in such work. In view of what has just been said it is interesting at length to have at hand some further contributions regarding the possible migrations of silica in nutrition. Careful analyses by Professor Schulz[1] of Greifswald, have indicated the daily output in the urine of man to be not inconsiderable under ordinary conditions of diet. His figures range from 0.09 to 0.26 gram of silica per day. The content of silica excreted apparently varies with the nature of the diet. Thus when coarse bread (containing 0.03 per cent. of silica) was omitted from the food ordinarily consumed by the subject there was a corresponding decrease in the amount of silica excreted by the kidneys. The highest figures (0.26 gram per day) on the other hand were obtained after ingestion of a soup prepared from millet, the grain of which is notably rich in silica. It appears probable, therefore, that the silicon derivatives present in the foods may be absorbed to a not inconsiderable extent from the alimentary tract of man and reappear in the urine. To what extent this eliminated product has actually entered into the chemical exchanges of the tissues themselves remains to be disclosed by further research.

1. Schulz, Hugo: Die quantitative Ausscheidung der Kieselsäure durch den menschlichen Harn, Arch. f. d. ges. Physiol. (Pflüger's), 1912, cxliv, 350.

ALCOHOL AND INSANITY

While in almost every part of the civilized world alarm is felt at the increasing ratio of insanity in the population, there are some localities which seem, on the other hand, to be becoming less infested, so to speak, with the virus of mental disease. One of these appears to be the State of Kansas, which had in 1904, 56.2 commitments to its asylums per hundred thousand of population. In 1910 the number for each hundred thousand had fallen to 42.3, and in 1911 to 38.3, and the members of the State Board of Control and the asylum officials are said to credit this to the stricter enforcement of the prohibition laws of the state and the consequent diminished consumption of alcohol. Prohibition does prohibit in Kansas, it is asserted, and William Allen White in a recent article in the *Outlook*,[1] corroborates this statement. Of course, there must be some leakage over the border, but it seems to be a fact that Kansas is practically a "dry" state. It is not surprising that insanity should decrease with the diminished consumption of an article of diet, or rather of indulgence, which is credited by alienists with the direct causation of at least 10 per cent. of existing insanity — probably a considerably higher percentage — and which indirectly is a more or less important etiologic factor in a very much larger percentage of cases. The Kansas figures come reasonably close to those of the alienist statistician.

WHAT ONE STATE HAS DONE FOR THE COUNTRY

One of the stock arguments against state laws of a restrictive nature is that such laws place the state that passes them at a commercial disadvantage. One state passes a law prohibiting the employment of children of tender age in factories — a humane law; a law that most civilized countries have had on their statute books for a quarter of a century; a law of which all right-thinking people see the need. At once a plaint goes up from the manufacturers of that state urging that the law be repealed because since its enactment they have been unable to compete with the manufacturers in the same line of business in neighboring states where child-labor is still permitted. Or, it may be, the state passes a law forbidding women to work more than ten hours a day. Again, a protest is raised. The argument that a righteous, much-needed law will drive business from the state is a powerful one and has been responsible for many of the social and economic ills from which we are suffering. Nevertheless, there have been, and are, states that are willing to make some commercial sacrifices for principle's sake. North Dakota has what is called a "net weight law" requiring all package goods to be plainly labeled with the net weight of the contents — certainly a reasonable law and one to which no honest manufacturer should object. Nevertheless, the National Biscuit Company, one of the largest concerns of its kind, preferred to withdraw from the state rather than comply with that law. Possibly the company believed that by the withdrawal of its products — and, more important yet, its advertising — from North Dakota,

1. White, W. A.: Outlook, Feb. 24, 1912.

the net weight law would be overthrown. In this instance the manufacturer made a mistake; the law was not overthrown. On the contrary, this action resulted in the building up within the State of North Dakota of large plants where biscuits were made from the North Dakota wheat and sold to the people of North Dakota under truth-telling labels. After about six years of its short-sighted policy, the National Biscuit Company, doubtless realizing that it had cut off its nose to spite its face, reentered the State of North Dakota a few months ago with its products labeled in accordance with the requirements of the state law. Nor is such labeling exclusively for the North Dakota trade. In every state in the union this company's products now have printed on the carton not only the net weight of the biscuits, but also — which is more than the law requires — the number of biscuits in each package. The people of the whole United States, therefore, now know just how much they are getting for their money when they purchase this brand of crackers. And the State of North Dakota is to be thanked for it.

THE TITANIC DISASTER

Stunned by the awful tidings, eyes dimmed with tears, the world gropes back to daily tasks with reluctance, hoping against hope for news of more survivors. Death, as though resentful of man's proud boasts over this "unsinkable" ocean palace "built to cross the sea on schedule time regardless of the elements," set an iceberg across its path. Then Death said to Chivalry: "Choose you eight hundred. That is all that you can take. The remaining thirteen hundred will go with me." And, since Death was the master — for the moment — the thirteen hundred went gloriously down with Death in a triumph of self-sacrifice that should give us all, after the terrible heartache, a nobler impulse to service.

THE SAFETY OF OCEAN TRAVEL

Man has considered his recent steamship creations as comparatively safe and has launched into the air and attempted to conquer that element also. The loss of the *Titanic* bids him pause and consider. Although the largest ocean ships are seldom seriously affected by wind and wave, and although rocks and shoals are so well charted as to be a comparatively slight menace, protection is yet to be secured from the results of ships striking one another or icebergs. Like speed in railway travel, a quick transatlantic voyage is attended with increased peril; it means cutting across that graveyard of steamships, the fog-laden and iceberg-strewn Grand Banks of Newfoundland. If the public were willing to take more time on the passage, the ships would go farther south on a safer course. But wherever a ship goes, should it not be agreed that it must carry life-boats enough for all the souls on board? With other ships usually but a few hours away, and with the miracle of the wireless to summon help, life-boats could keep afloat until rescue came. It has been said that a sufficient number of life-boats would be an embarrassing encumbrance to an ocean greyhound. Then let the ocean greyhound be abandoned: let not death take such costly toll of time.

CLARA BARTON

Less than two years ago, we recorded the death of Florence Nightingale at the age of ninety, and commented on her work as the originator of military nursing. Now Clara Barton, one of the founders and the first president of the American Red Cross, has just died at about the same age. The careers of these two women are unique in a special line of philanthropic work. Miss Barton's name is associated especially with the foundation and administration of the American Red Cross, though her first great public service was rendered long before. Throughout the Civil War she devoted herself to the care of the wounded soldiers, working not in hospitals but on the battle-field. Later she originated and carried on, at first at her own expense, an organized search for missing soldiers. When, in 1869, broken down in health by these and other activities, she went abroad, the fame of her work had preceded her and she was not allowed the rest she had gone to seek. Representatives of the International Red Cross, organized about five years previously, enlisted her aid and interest; throughout the Franco-Prussian war she followed the German army and distributed relief in Strasburg, Belfort, Montpellier and Paris. In 1881 she became the first president of the American Red Cross, and this position she held until 1904. It was through her efforts that in 1882 the United States government became one of the parties to the Geneva Convention. It would be difficult to enumerate even briefly the items of Miss Barton's public service. In her advanced age she still worked on; Johnstown after the flood of 1889, Russia after the famine of 1892, Armenia, Galveston, the Sea Islands of South Carolina, Cuba — all knew her beneficent presence. The object of the Red Cross as defined by the Geneva Convention in 1864 was confined to organized nursing during war. Clara Barton was the author of the "American Amendment," by which its ministrations are extended to pestilence, famine and great catastrophes like earthquakes and floods. Its invaluable services to practically all countries of the world no doubt suggested and encouraged the extension of nursing and relief to other fields of public responsibility. Out of it has evolved the development of public nursing not only in epidemics, but in the care and management of diseases like tuberculosis, the great prevalence and danger of which have made them the subjects of municipal and governmental supervision.

CAMPHOR DISTILLED FROM THE LEAVES

Camphor was formerly distilled entirely from the wood of the camphor-tree. The supply of trees having become lessened during the past few years there has been a tendency for the drug to rise in price. This has stimulated the efforts of chemists to produce camphor by synthesis. This achievement has been accomplished, but so far the synthetic product has failed to compete seriously with the natural one, owing to the high prices of the parent substance, oil of turpentine. Within the past year or two it has been found that the leaves of the camphor-tree yield on distillation about 1 per cent. of camphor, and that the crude product distilled from the leaves dried by the sun contains less oil, and therefore

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requires less purification than the drug obtained from the other parts of the tree. This source has helped to increase the available supply and at the same time permits the preservation of the trees. Recently there has been a downward trend in the price of the drug, which will no doubt continue as the supply of trees is allowed to remain standing and to increase, with the use of the leaves as the source of the drug.

THE OWEN BILL BEFORE THE SENATE

The Owen bill has been favorably reported on by the Senate Committee on Public Health and National Quarantine, and is now before the Senate as Calendar Bill No. 561. The full text of the amended bill as provided by the committee is published in this issue.[1] As it now stands, the Owen bill is undoubtedly the best bill yet presented. It provides for an independent establishment to be known as the United States Public Health Service under a director of health, to be appointed by the President. To this Public Health Service are to be transferred the present Public Health and Marine-Hospital Service from the Treasury Department, the Division of Vital Statistics from the Department of Commerce and Labor, and that portion of the Bureau of Chemistry of the Department of Agriculture charged with the enforcement of the national Food and Drugs Act. It will coordinate the public health activities of the United States into one service which will be divided into seven bureaus and divisions, namely, a Bureau of Public Health and Marine-Hospital Service; a Bureau of Foods and Drugs; a Bureau of Vital Statistics; a Bureau of Child Conservation, and Divisions of Sanitary Engineering, Personnel and Accounts, and Publications. The committee, in its report recommending the passage of the bill, refers to the annual death loss in the United States, to the enormous financial loss caused thereby and to the possibility of preventing unnecessary disease, as shown in Cuba, the Canal Zone and elsewhere. The last two paragraphs of the report should relieve all doubts on the part of the members of any sect or religious organization as to the effect of the bill on personal liberty.

> "This bill provides that the Health Service shall not interfere with any of the functions belonging exclusively to the states, nor permit anyone to enter the premises of private persons without the permission of the owner or occupant thereof, and shall have no power to regulate the practice of medicine or the practice of healing, or to interfere with the right of a citizen to employ the practitioner of his choice, or to make any discrimination in favor of or against any school of medicine or of healing.
>
> "The opposition which has been stirred up against the establishment of an independent Health Service has proceeded on the assumption that the Health Service would have the right under this bill to interfere with the citizen in employing the practitioner of his own choice or to interfere with the states in the regulation of the practice of medicine or the practice of healing. The Constitution offers abundant protection against these apprehended evils and the bill permits nothing of the sort. It forbids it."

It is gratifying to know that this bill has finally been made satisfactory to the members of the committee. What position a majority of the senators will take remains to be seen. Certainly they cannot be expected to vote in favor of this important measure unless the educated, scientific physicians of the country exert themselves to arouse public sentiment on the subject, and to see to it that the members of both houses of Congress are informed of the views of their constituents. Every physician, and especially every member of every county society, should make it his especial and immediate duty to inform himself on the provisions of this bill, the reasons for its passage and the objections to it, and should use his influence to secure an expression of public opinion in favor of its passage. Every county society and state association, and particularly the members of the committees on legislation and public health, should take immediate steps to inform the public on the importance of the passage of this bill. None of the objections which have been raised can be regarded as valid. Honest opposition to it can be due only to ignorance of its provisions. If all those who favor advanced legislation for public health will lend their assistance the prospects for the passage of this bill will be greatly enhanced.

1. Medical Economics, p. 1221.

THE INSANITY DODGE UNSUCCESSFUL IN CANADA

Mr. Justice Riddle, of the Court of King's Bench of Ontario, speaking before the New York State Bar Association, gave his hearers the decided impression that Canadian justice is more speedy and certain than American. He argued that the ultimate object in legal procedure should be the attainment of substantial equity and justice, and not the exaltation of technicalities. Canadians, apparently, strive to attain concrete justice "no matter if the record does get a shock now and then," to use the words of the learned justice. Apparently it is permitted in Canada to ask an expert alienist the direct question whether or not he considers a witness or a prisoner insane, while in the United States the law is often forced, it seems, to employ the absurd circumlocution of the hypothetical question. In Canada, even if an expert declares it to be his opinion that a prisoner is insane, this does not mean freedom from the penalty of the law. In one case Mr. Riddle obtained from the expert the statement that the prisoner, although insane, knew that his act was against the law. The justice therefore charged the jury, "If a man knows that what he is doing is against the law, no matter how insane he may be, it is the mandate of the law and your duty to hang him." Canadian law, remarked Justice Riddle, in his New York address, "says to a man who's troubled with an irresistible impulse to murder: 'I'll hang a rope up in front of your nose and see if that won't help you to inhibit your impulses.' As a net result," continued the justice, "we're not troubled much with expert witnesses in Canada."

Suggestion in Hopeless Disease.—Through fostering and strengthening that power [to master disordered feelings] in his patients who are hopelessly sick, the physician can best demonstrate his powers for good. As Billroth said in a speech delivered in 1891, "The patient comes to the physician for advice, consolation and hope; if you give him nothing of this, you may be an excellent diagnostician and prognosticator, but you are no doctor."—Jacoby in "Suggestion and Psychotherapy."

Medical News

ALABAMA

New Officers.—Sumter County Medical Society, at Livingston, March 21: president, Dr. W. J. Cocke; secretary-treasurer, Dr. D. S. Brockway, both of Livingston.

Arrested for Spitting.—Two special sanitary officers detailed by the health department of Birmingham to watch for and arrest spitters on street cars made eleven arrests for this offense, March 13.

New Cottage for Tuberculosis Camp.—Work has begun on the new cottage at the fresh-air camp of the Antituberculosis League at Montgomery, donated by the local camp of the Woodmen of the World.

Personal.—Dr. T. C. Jones, Athens, is reported to be seriously ill with pneumonia.——Dr. Robert Nelson, health officer of Birmingham, has been appointed a member of the Chamber of Commerce committee on the abatement of the smoke evil and other nuisances.——Dr. W. S. Britt, Eufaula, Major M. C., N. G., Ala., assigned Fourth Infantry, has resigned.

GEORGIA

Personal.—Dr. R. L. Hope, Easton, has been elected president of the Fulton County Board of Education.——Dr. Paul Peniston, Newnan, was seriously injured March 13, while making a professional call at night. He was thrown from his horse, breaking his right arm and right leg. The accident happened at midnight and he lay until five in the morning until help arrived.

Medical Society Activities.—At the meeting of the Georgia Medical Society, March 12, a symposium was held on diseases of the liver. On March 19, the Library Committee and Book and Journal Club met and were addressed by Dr. J. Ewing Mears, Philadelphia, on the development of a great medical library, and rare books, papers and autographs were also exhibited.

New Officers.—Tri-County (Early, Calhoun and Miller) Medical Society, April 3: president, Dr. P. H. Fitzgerald; secretary-treasurer, Dr. J. G. Standifer, both of Blakeley.——Burke County Medical Association, organized March 29 at Waynesboro: president, Dr. C. H. Cox; secretary-treasurer, Dr. J. M. Byne, both of Waynesboro.——Seventh District Medical Society at Rome: president, Dr. A. B. Greene, Cartersville; secretary, Dr. T. Lowry, Euharlee.——Second District Medical Society, reorganized March 13 at Albany: president, Dr. W. W. Jarrell, Thomasville; secretary-treasurer, Dr. J. A. Redfearn, Albany.

ILLINOIS

Epileptic Colony Asked.—The State Charities Commission urges the establishment of a state industrial colony for improvable epileptics. This colony is not intended to care for chronic and insane epileptics.

Society Indorses Sanatorium.—Fifty-five members of the Peoria Medical Society have signed a statement indorsing the establishment of a tuberculosis sanatorium in the city, as provided by the Glackin law.

New Sanatorium Head.—Dr. George A. Weiriek, who has been assistant superintendent of the Broughton Sanitarium, Rockford, Ill., has assumed charge of the institution, vice Dr. Russell Broughton, deceased.

New Officers.—McLean County Medical Society, at Bloomington, April 4: president, Dr. W. H. Gardner; secretary-treasurer, Dr. T. D. Cantrell, both of Bloomington.——Rock Island County Medical Society, at Rock Island, April 9: president, Dr. E. Sargent, Moline; secretary, Dr. W. D. Chapman, Silvis.

Personal.—Dr. John E. Tuite, Rockford, has been elected president of the Teachers' Pension Board.——Dr. E. W. Wahl, Sterling, who has been seriously ill, has recovered and resumed practice.——At the meeting of the Illinois State Board of Health, held in Chicago, April 16, Dr. George W. Webster, Chicago, was reelected president, and Dr. James A. Egan, Springfield, permanent secretary.

Library for Medical Society.—At a special meeting of the Stephenson County Medical Society in Freeport, April 8, the committee appointed to consider the matter of the establishment of a medical library and the publication of a local society bulletin, reported favorably on both propositions. The library board has granted the society a room for a medical department, and each physician present at the meeting subscribed $10 toward the establishment of the library.

Present Condition of Suits Against State Board.—The mandamus suit of the National Medical University of Chicago against the State Board of Health for recognition, which was filed in the Superior Court of Cook County on December, 1909, is still pending, no attempt being made by the National Medical University to obtain a trial. The personal damage suit of the National Medical University against each individual member of the State Board of Health in the sum of $500,000 is now pending in the Appellate Court. The Superior Court, in which the suit was originally filed, decided in favor of the members of the board.

Chicago

The Owen Bill.—Just before the adjournment of the annual meeting of the West End Woman's Club, April 12, a resolution was presented by Mrs. Mary Ridpath Mann to instruct the delegates to the biennial convention of the Federation of Woman's Clubs to "use all their influence to promote the passage of the bill to provide a Department of Public Health." This resolution was adopted without a dissenting vote.

Honor to Hektoen.—A dinner was given to Dr. Ludvig Hektoen at the Chicago Club April 11 by the faculties of Rush Medical College and the College of Physicians and Surgeons and his former students at these institutions, in honor of the twenty-first anniversary of his entrance into the practice of medicine. Dr. Frank Billings presided. An oil-painting of Dr. Hektoen was presented to him by his friends, the presentation speech being made by Dr. E. R. Le Count. Prof. E. O. Jordan and Drs. H. Gideon Wells and James B. Herrick responded to toasts.

KENTUCKY

Meningitis in Louisville.—Up to April 13 there had been reported 159 cases of cerebrospinal meningitis in Louisville, with a mortality of a trifle over 42 per cent. and in about 10 per cent. of the cases there was more than one case in a family. On account of the prevalence of the disease, the Board of Education extended the usual spring vacation one week, during which time every school room was scrubbed and fumigated. The schools reopened April 15, as the number of new cases was much reduced.

MARYLAND

Personal.—Dr. Francis E. Harrington has been reappointed bacteriologist and health officer of Cumberland.——Dr. John P. Beck, Cavetown, has sued the Hagerstown Fair Association for $5,000 damages, on account of injuries said to have been sustained last October by a fall due to the breaking of a handrail at the grand stand in the fairgrounds.

Laws Passed by Legislature.—Laws were passed by the last legislature providing for reports on occupational diseases and inspection by the State Board of Health; authorizing the State Board of Health to provide treatment for hydrophobia patients; making appropriations for the Springfield Hospital for the Insane and for the Montevue Hospital, Frederick County; for the reclamation of swamp land, for which $10,000 was appropriated, to be repaid; providing for the publication of vital statistics by the State Board of Health; providing for the distribution of tuberculin by the State Board of Health, and enlarging the powers of the State Board of Health.

Appropriations by the Legislature.—The following appropriations, each, except the first, being for a year, were made by the last legislature:

State care of insane, $800,000, by a bond issue which provides also for a new hospital on the eastern shore; University Hospital, $17,500; Mercy Hospital, $17,500; St. Agnes' Hospital, $8,000; St. Joseph Hospital, $10,000; Union Protestant Infirmary, $10,000; Hospital for Crippled and Deformed Children, $12,000; South Baltimore Eye, Ear and Throat Hospital, $2,500; Baltimore General Dispensary, $1,000; General Marine Hospital, Cresfield, $5,000; Medical and Chirurgical Faculty of Maryland, $5,000; Mount Hope Retreat, $15,250; Nursery and Child's Hospital, $3,000; Franklin Square Hospital, $7,000; Hebrew Hospital, $10,000; Hospital for Women of Maryland, $10,000; Maryland General Hospital, $15,000; Maryland Homeopathic Hospital, $6,500; St. Luke's Hospital, $4,000; Provident General Hospital, $1,500; Annapolis Emergency Hospital, $10,500; Easton Emergency Hospital, $5,000; Frederick City Hospital Association, $10,000; Peninsula General Hospital, Salisbury, $12,500; United Charities Hospital Association, Cambridge, $15,000; Havre-de-Grace Hospital, $5,000; Union Hospital, Cecil County, $5,000; Washington County Hospital Association, $10,000; Home Infirmary of Western Maryland, $9,000; Baltimore Eye, Ear and Throat Hospital, $9,000; Baltimore Home for Incurables, $2,500; Jewish Home for Consumptives, $6,500; Maryland Lying-In Hospital, $4,000; Maryland Lying-In Maternity, $4,000; University of Maryland Lying-In Hospital, $4,000; West End Maternity, $4,000; Hospital for Consumptives, Eudowood, $25,000; Silver Cross Home for Epileptics, $1,500; Southern Dispensary, $500; Children's Hospital School for Baltimore, $5,000, and St. Mary's County Hospital, $1,500

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Baltimore

Hospital in Receiver's Hands.—The South Baltimore General Hospital is said to have gone into the hands of a receiver. The bill of complaint was filed by Dr. Anna S. Abererombie, who alleged that the hospital owed her $672 and by the Woman's Medical College, which claimed a debt of $700.

President Remsen Resigns.—Dr. Ira Remsen, for nine years president of Johns Hopkins University and one of the original members of the faculty of that institution, tendered his resignation to the board of trustees, April 10. Dr. Remsen will retain his professorship of chemistry in the university.

Foreign Physicians Visit Baltimore.—Sir Bertrand Dawson, London, physician extraordinary to King George, visited Baltimore April 10 and was given dinners at the Maryland and Country Clubs by Drs. Thomas B. Futcher and William S. Thayer.——Drs. Fritz Kayser, Ann Kayser, Henry Erik Lind and N. Groely of Sweden visited Johns Hopkins Hospital, April 12.

Personal.—Dr. Charles B. Whelth has been appointed a health warden, vice Dr. L. J. Turlington, and Dr. Bernard J. Wess, vice Dr. E. H. Hayward. Dr. Hayward sailed for Europe, April 17.——Dr. John C. Hemmeter entertained the Baltimore County Medical Society at his residence, April 17.——Dr. Thomas A. Ashby, president of the Maryland Alumni Association of Washington and Lee University, entertained the association, April 15, the guest of honor being the new president, Dr. Henry Lee Smith.

MASSACHUSETTS

New Dean for Medical School.—Dr. Edward H. Bradford was elected dean of the Faculty of Medicine in Harvard University, March 10, vice Dr. Henry A. Christian.

Cutter Lecture.—Dr. John F. Anderson, U. S. P. H. and M.-H. Service, will deliver the annual Cutter lecture on preventive medicine at Harvard Medical School Thursday, May 9, 1912, on "Some Recent Advances in Our Knowledge of Certain Infectious Diseases."

Small-Pox in Salem.—The Salem small-pox epidemic was arrested after about sixty cases, mostly mild, had developed, and about 10,000 persons had been vaccinated. The earlier cases occurred among the French-Canadian population, who either concealed them or considered them chicken-pox. No further trouble is anticipated.

Personal.—Drs. Augustus Thorndike, Boston, and James S. Stone, Boston, have been chosen members of the executive committee of the Industrial School for Crippled and Deformed Children, of which Dr. E. H. Bradford is a trustee.——Dr. J. Collins Warren has been elected president and Dr. George B. Shattuck first vice-president of the Massachusetts Humane Society.

Must Report Births.—On April 21 the new rule of the Boston Board of Health, requiring the reporting of births within forty-eight hours, will go into effect. Five nurses, under Health Commissioner Mullowney, are to give their entire time to teaching how to care for infants, in an effort to lessen the mortality. The board has appealed for volunteers to help in this work.

New Staff for Brigham Hospital.—The medical staff of the Peter Bent Brigham Hospital, now under construction, includes in addition to Dr. Henry A. Christian, physician in chief, Dr. Channing Frothingham, Jr., as physician; Dr. Francis W. Peabody, resident physician; Dr. Reginald Fitch, senior medical house officer; Dr. R. P. Dorsan, Jr., medical house officer; Dr. W. G. Smillie, sub-junior medical house officer and Dr. I. Chandler Walker, resident in charge of the medical outpatient department.

MICHIGAN

Hospital News.—A movement was started among business men of Traverse City for the establishment of a hospital to cost $50,000.——The De Vore Hospital, Grand Rapids, has been enlarged and remodeled and will now accommodate thirty patients.

Honor Walker's Memory.—At a meeting of the Wayne County Medical Society, April 8, resolutions were unanimously adopted setting forth Dr. Henry O. Walker's work as a surgeon, an administrator and educator, paying tribute to him as an honest and honorable man and a friend to be counted on.——The medical staff of Harper Hospital, at a meeting April 6, adopted similar resolutions.——Resolutions were also adopted by the medical board of St. Mary's Hospital setting forth the faithful and distinguished services of Dr. Walker to that institution.——At Dr. Walker's funeral, which was held April 8, the list of honorary pallbearers was made up of leading physicians of Detroit and the active pallbearers were six physicians who had been associated with Dr. Walker in his office.

Personal.—Dr. H. E. Locher, Grand Rapids, is reported to be critically ill.——Dr. H. C. Guillot, Pontiac, is under treatment at the Oakland County Hospital, on account of an infection of the throat and bronchial tubes.——Surgeon R. M. Woodward, U. S. P. H. and M.-H. Service, who, after nearly four years' duty in Detroit, has been ordered to San Francisco, was given a farewell dinner at the Detroit Club, April 3, by members of the Wayne County Medical Society. Dr. C. G. Jennings presided as toastmaster.——Dr. Z. L. Baldwin, Kalamazoo, was injured in a runaway accident, April 4.——Dr. Hayes Kelly has succeeded his father, the late Dr. E. H. Kelly, as surgeon at the Ashland Mine, Ironwood.——Dr. A. S. Wilson, Bellevue, is reported to be seriously ill in the University Hospital, Ann Arbor.——Dr. Clarence W. Young has been reelected mayor of Allegan.——Dr. F. C. Warnshuis, Grand Rapids, was operated on for appendicitis at the Butterworth Hospital and is reported to be doing well.——Dr. B. F. A. Crane, Saginaw, who has been under treatment at the Saginaw General Hospital for several days, is convalescent.——Dr. J. H. Lemen, Whitmore Lake, is reported to be seriously ill.——Dr. and Mrs. I. E. Lindgren, Ishpeming, have gone to Finland for the summer.——Dr. Harry B. Britton, Ypsilanti, was operated on recently for appendicitis at a private hospital in Ann Arbor.——Dr. A. M. Darling, Crystal Falls, who has been seriously ill with septicemia, due to an operation wound, is reported to be convalescent.

MINNESOTA

Nurses' Home at Rochester.—The Sisters of St. Francis of Rochester will build a nurses' home, west of St. Mary's Hospital. The building will be four stories in height, will contain rooms for 100 nurses and will cost $100,000.

Sanatorium Notes.—Jacob Weil, St. Cloud, has donated a lot on the outskirts of the city as a site for the county tuberculosis sanatorium. Applications will be made to the county commissioners for the fund available under the state law and private contributions from citizens will also be solicited.——"Nopeming Sanatorium," the county sanatorium for St. Louis county, is almost completed and will be ready to receive patients May 1.

Personal.—Dr. D. F. Dumas, retiring president of the Cass Lake Village Council, was presented by the Board of Aldermen at the final meeting of the council for the year with a meerschaum pipe as a token of goodwill.——Dr. William H. Smith has succeeded Dr. G. A. Christensen as chairman of the Board of Health of Cass Lake.——Dr. Burnside Foster, St. Paul, has been elected professor of dermatology and syphilology in the Medical Department of the University of Minnesota.

Hospital Notes.—An appropriation of $100,000 is to be asked from the St. Paul City and Ramsay County Board of Control to add two stories to one of the wings of the new hospital building, to be used as a tuberculosis ward. This will give accommodation for 200 additional patients.——Hopewell Hospital, Minneapolis, is practically completed and will be ready to receive patients within a few days. The opening of this hospital will mean the closing of the Marcy School Hospital, where for two years consumptives and incurable city patients have been cared for.

NEBRASKA

Fraternity Banquet.—The annual banquet of the Phi Beta Pi Medical Fraternity was held in Omaha, March 27, thirty members of the fraternity and eighteen honorary members being present.

Personal.—Dr. L. F. Polk, Louisville, has discontinued the active practice of medicine.——Dr. Charles Lucas, Shelton, has been appointed local surgeon of the Union Pacific system, vice Dr. E. L. Smith, deceased.——Dr. and Mrs. C. F. Secord, Omaha, have returned to their mission field among the Quichi Indians in Guatemala.

New Officers.—Butler County Medical Association, at David City, March 9: President, Dr. Handen, Bellwood; secretary-treasurer, Dr. H. E. Marselus, Octavia.——Burt County Medical Society, at Tekamah, April 3: president, Dr. S. A. Swenson; vice-president, Dr. H. W. Benson, both of Oakland.——Gage County Medical Association, at Wymore, April 2: president, Dr. A. V. Robinson; secretary-treasurer, Dr. L. E. Penner, both of Beatrice.

NEW JERSEY

Hospital for Soldiers' Home.—The legislature has passed a bill appropriating $50,000 for a hospital at the New Jersey Soldiers' Home, Vineland

New Officers.—Essex County Medical Society, at Newark, April 2: President, Dr. Thomas N. Gray; secretary, Dr. Ralph H. Hunt, both of East Orange.——Gloucester County Medical Society: President, Dr. Vernon E. DeGrofft, Swedesboro; secretary-treasurer, Dr. George Evans Reading, Woodbury.

Preventorium to Be Opened.—The new $150,000 home of the Tuberculosis Preventorium for Children at Farmingdale will be opened April 25. The institution will have accommodations for 700 tenement children of families in which tuberculosis already exists. The work of the institution has been conducted for the last two years in frame cottages at Farmingdale and, in this period, 400 children have been saved from tuberculosis and there has not been a single case of illness among its inmates.

Personal.—Dr. John K. Bennett has been elected health inspector by the Gloucester City Health Board.——Edward E. Worl, Newark, has resigned as medical director of the Verona Tuberculosis Sanatorium.——Dr. George W. King, Secaucus, has succeeded the late Dr. Charles B. Converse, Jersey City, as physician of Hudson County and Dr. Henry V. Smith, Jersey City, has succeeded Dr. King as medical superintendent of the Hudson County Hospital for the Insane, Snake Hill.——Dr. Alexander McAllister, Camden, has been appointed a member of the state medical board.——Dr. I. N. Griscom has been elected chief of the Bureau of Health and Charity of Ocean City.——Dr. John B. Cassady has been appointed a member of the Burlington Board of Health.——Dr. Joseph M. Malatesta, Cedar Grove, has been appointed fourth assistant physician of the Essex County Hospital for the Insane.

NEW YORK

Fire in Hospital.—On the night of April 1 a fire broke out in the Sayre Hospital, Mount Vernon, which necessitated the removal of all the patients. The fire was confined to the basement and first floor. The damage has not been estimated.

Commission Changes Name.—Under the provisions of a law recently passed by the legislature, the name of the State Commission in Lunacy is changed to the State Hospital Commission, thus carrying to a logical conclusion the purpose of the state to abandon the use of the word "lunatic."

New Board Appointed.—At the meeting of the board of managers of the Children's Home, Schenectady, March 26, a new medical staff was appointed, made up as follows: Drs. Lester Betts, Walter M. Clark, K. S. Clark, P. E. Garlock, Louis A. Gould, H. P. Groesbeck, H. G. Hughes, Dudley R. Kathan, H. L. Towne, B. Van Zandt, Eleanor D. Mann and Reid Gilmore.

Personal.—Dr. Frederick F. Hoyer, Tonawanda, will celebrate his ninetieth birthday anniversary May 9.——Dr. John A. Heatly, Schenectady, has started for Europe.——Dr. Alexander J. Campbell, Syracuse, has purchased property for $30,000, to use for an office and sanatorium.——Dr. John W. Russell, Fishkill-on-the-Hudson, has been appointed superintendent of the Matteawan State Hospital. He was formerly first assistant superintendent and has been in charge of the institution since the resignation of Dr. James V. May.

Industrial Accidents.—The New York State Department of Labor, in its quarterly bulletin, shows that during the last three months of 1911, 10,322 employees were injured in factories in this state, 4,520 in building and engineering work and 153 in mines and quarries. This makes a total of 14,955 for these three industries alone and 138 of these accidents were known to have been fatal. During the last six months there have been eighty-seven cases of lead poisoning, two of arsenic poisoning, one each of phosphorus and mercury poisoning, two of anthrax and twenty-nine of caisson disease, making in all 122 cases, with five fatalities.

Urge Veto for Sullivan Bill.—The Sullivan bill, amending the poor law so that the financial circumstances of every person applying for aumittance to a public hospital or sanatorium may be investigated by the poor law officials, is opposed by 260 local antituberculosis committees of the State Charities Aid Association. This organization contends that county and city tuberculosis hospitals should be kept open to all classes of citizens, self-supporting as well as pauper, and urges the governor to veto the bill because it would restrict the use of these institutions to paupers, by putting the investigation as to circumstances in the hands of the poor-law officers instead of the superintendent of the hospital.

State Hospital for Deformed and Crippled Children.—The eleventh annual report for the year ending September 30, 1911, is just out. This hospital was opened at West Haverstraw on December 5, 1900. Although other states anticipated New York in this form of state charity, New York was the first to incorporate a state hospital for the treatment of these cases. Since the foundation of the hospital there have been admitted 266 patients, 203 have been discharged, four died and fifty-nine are now under treatment. All the deaths have been from tuberculous meningitis, complicating tuberculous disease elsewhere. There has not been a single death from acute or from infectious diseases of childhood.

Insane Aliens.—Secretary McGarr of the State Commission in Lunacy states that there are at present 31,432 insane patients under treatment in the fourteen state hospitals and of this number 13,163 or 41.9 per cent. are aliens. Foreign born patients have increased since the Federal census of Dec. 31, 1903, by 1,552, or 13.4 per cent. In the two state hospitals for the criminal insane there were 1,230 patients on February 10, of whom nearly 44.4 per cent. were of foreign birth. The Federal census of 1910 showed a percentage of aliens to the total population in this state of 29.9. Of the 5,700 patients admitted to the civil hospitals for the year ending Sept. 30, 1911, 2,737, or 48 per cent., were aliens and 1,481, or 26 per cent., were of alien parentage while less than 26 per cent. were of native stock. Insanity among the foreign peoples of New York occurs in a still larger percentage of cases. Of the first admissions to the hospitals 2,006 out of 3,221 residents of the city were of foreign birth; that is 64 per cent., although the foreign-born population is but 40 per cent. of the whole. These figures show why the State Commission in Lunacy has asked Governor Dix to investigate the whole matter so that this state may present a report on the subject to the United States Government, the ultimate object being to secure an amendment of the federal laws governing the immigration and deportation of defective aliens and so to provide means whereby the state may be reimbursed for the enormous expenditure incurred in caring for persons who should never have been permitted to enter the country.

New York City

Small-Pox Holds Liner.—The White Star steamship Cedric, which arrived from Mediterranean ports on April 12, had a case of small-pox on board and was held at quarantine over night.

New Hospital.—The directors of the East New York Dispensary have obtained a charter from the State Board of Charities for the purpose of maintaining a hospital in the Brownsville section.

Scholarship for Medical School.—It is reported that by the will of the late Phoebe Caroline Swords $10,000 has been left for the establishment of a scholarship in the College of Physicians and Surgeons, Columbia University.

Cartwright, Not Middleton-Goldsmith.—Dr. David Bovaird, Jr., states that the announcement of a series of lectures by Dr. Ludwig Pick, recently sent by him to THE JOURNAL, should read "Cartwright" and not "Middleton-Goldsmith" lectures, as written.

Bellevue to Have New Medical Superintendent.—The position of general medical superintendent of Bellevue Hospital, which has been temporarily filled by Dr. George O'Hanlon, has been declared open for appointment. A number of names have been submitted by the Municipal Civil Service Commission as eligibles.

Class Reunion.—The twentieth anniversary, reunion and banquet of the class of 1892 of the Medical Department of the City of New York University was held April 3, Dr. Robert E. Coughlin, Brooklyn, acting as toastmaster. The class originally numbered 162 and of these nine have died. At the close of the dinner, by common consent, a silent toast was given to the old university, its professors and teachers and the absent members of the class.

New Seaside Hospital Wanted.—The Association for Improving the Condition of the Poor has renewed its offer, made in 1906, to erect and equip at a cost of $250,000 a hospital for the treatment of children suffering from non-pulmonary tuberculosis, on condition that the city will provide the seashore site and own and maintain the hospital when it is completed. The association says that there are between 4,000 and 5,000 children of the poor in the city who are crippled by tuberculosis of the bones and glands, and that the Sea Breeze Hospital is the only means in this country of giving such children sea air treatment.

OHIO

New Officers.—Gallia County Medical Association: president, Dr. William H. Pritchard; secretary-treasurer, Dr. Milo Wilson, both of Gallipolis.

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State Society Meeting.—Arrangements have been completed for the meeting of the Ohio State Medical Association, to be held in Dayton, May 7-9.

Health Board Moves Offices.—On account of changes required in the state house, the State Board of Health has moved to offices in the Hartman building.

State Teachers' Meeting.—The annual meeting of the Ohio State Medical Teachers' Association was held in Columbus, April 5. Dr. W. E. Mosely, Jr., Toledo, was elected president; Dr. H. M. Knower, Cincinnati, vice-president; Dr. Roy G. Hoskins, Columbus, secretary, and Dr. C. W. McGavran, Columbus, treasurer.

Hospital News.—The Isabel Hampton Robb Memorial Home, Cleveland, designed as a gathering place for graduate nurses, was formally dedicated, April 9.——The Marshall Hospital, Portsmouth, which has been closed for two months, has reopened.——The campaign to secure a fund of $100,000 for St. Elizabeth Hospital, Youngstown, started April 17.——Plans have been drawn for the new Niles Hospital, which is to cost $40,000 and will accommodate forty private patients in addition to ward patients.

Personal.—Dr. W. W. Smith, Portsmouth, who was operated on recently in Christ Hospital, Cincinnati, has returned home convalescent.——Dr. W. A. Metzger, Youngstown, who has been ill for several weeks in a Chicago hospital, is reported to be convalescent.——Dr. Elijah P. Clemens, Dayton, was held up and robbed in his office, April 5.——Dr. Russell A. Jewitt, Cleveland, while walking across a trestle, March 31, was struck by a train and seriously injured.——Dr. C. O. Probst, Columbus, has returned from Europe.——Dr. E. O. McCall, Portsmouth, was seriously injured recently in a collision between his automobile and a street car.——Dr. L. M. Early, Columbus, who has been seriously ill at Mount Carmel Hospital with cancer, the result of *x*-ray burns on account of which the amputation of the left arm at the shoulder was necessaitated, is reported to be improving.

PENNSYLVANIA

New Dispensary Opened.—The dispensary building of the Philadelphia Polyclinic and College for Graduates in Medicine is now completed, fully equipped and in proper running order.

To Found Suburban Hospital.—Abington, Montgomery County and a suburb of Philadelphia, has a movement to raise funds for the purchase of a site and a building for a hospital for the suburban section along the old York Road. The nearest hospital is the Jewish which is from six to ten miles from the district in which it is proposed to build.

Personal.—Dr. George E. Alleman has reported for duty and will take charge of the medical department of Altoona Hospital; Dr. A. S. Kech will have charge of the gynecological work and Dr. H. J. Davis will superintend the surgical work both in the hospital and dispensary.——Dr. David F. Swisher, Darby, fractured his arm while cranking his automobile, April 2.

Hospital News.—A movement has been started to establish a sanatorium for the treatment of tuberculosis in Warren.——The new department for children at Mount Alto Sanatorium was opened April 2. The new building is 200 by 40 feet and will accommodate 100 children.——The Charles B. Houston Memorial addition to the Chester Hospital is completed and was opened to the public April 10. The building is intended for the care and treatment of children.

Pittsburgh Maternity Dispensary.—The board of directors of the Pittsburgh Maternity Dispensary have sent out invitations for the informal opening of the dispensary, April 15. This dispensary has been founded and is being supported through the generosity of citizens of Pittsburgh with the object of providing free medical service during confinement for the worthy poor of the city. The dispensary staff consists of fifteen medical attendants, physicians and nurses, who live in the dispensary and devote their entire time to this work. These attendants may be reached at any time through the dispensary. Satisfactory evidence must be shown that the patient is unable to pay for the services of a physician. The assurance of reputable societies and individuals referring cases will be sufficient evidence and all cases applying directly to the dispensary will be investigated by the Dispensary's Social Workers. Patients are urged to present themselves for registration at the dispensary on Mondays, Wednesdays and Fridays from 2 to 3 p. m. Such patients will be cared for before labor, at the time of confinement and so long thereafter as may be necessary. Medicine, dressings and all other necessary medical supplies will be furnished.

Philadelphia

Personal.—Dr. and Mrs. James A. Irwin sailed for Europe, April 18.——Dr. D. Randall MacCarroll was thrown from his carriage in a runaway accident and sustained painful injuries.

Baby-Saving Show.—A baby-saving show is to be held in Horticultural Hall from May 18 to 25. It is planned to have the show demonstrate every phase of the care of the mother and child, previous to birth and during the early years of the child.

Directory for Wet-Nurses.—The Children's Aid Society of Pennsylvania is establishing a directory and Registration Bureau for Wet-Nurses in its building at 419 South Fifteenth Street. The society has undertaken this work in order to secure wet-nurses for young babies for whom it is asked to provide such care on the recommendation of doctors connected with hospitals and charitable agencies. In addition, the society hopes to keep on hand a list of certified wet-nurses who may be employed by doctors for their private patients. The wet-nurses and their babies will be examined by a doctor and no one will be recommended who has not passed the various tests required to provide every safeguard for both the wet-nurse and the baby.

Work on Home for Indigent to Continue.—In reply to the proposition of the Citizens' Committee that the contracts for the Home for Male Indigents and the Home for Feeble-Minded Women be abrogated, Mayor Blankenburg wrote the committee in part as follows: "The congested conditions at Blockley are intolerable and the new buildings, under construction at Holmesburg, will greatly relieve this congestion, and will do it very quickly. To stop the work on this contract will be to delay for many months and possibly for years, any material relief for these conditions." He also suggested that auxiliary buildings could be dispensed with and that the present structure might be turned over to the department of Public Safety as an addition to the House of Correction, when a home for the indigent could be built along ideal lines. The committee accepted the mayor's decision and is now formulating plans for handling the feeble-minded, and for better care of tuberculous patients.

Tuberculosis Society Report.—The twentieth annual meeting of the Pennsylvania Society for the Prevention of Tuberculosis was held at the Roger Williams building on April 10. Asa S. Wing was reelected president and the following officers were elected: vice-presidents, Drs. James Tyson, Joseph S. Neff, William Duffield Robinson, William C. White and Mr. Talcott Williams; treasurer, F. A. Evans; secretary, Dr. Ward Brinton; solicitor, Samuel Scoville, Jr.; directors to serve three years, Dr. J. Clinton Foltz, Dr. J. Willoughby Irwin, L. J. Palmer, Alexander M. Wilson, assistant director of health and charities, and Dr. A. J. Cohen. The annual report of the society showed that there are 22 children in their open-air school on the roof of the Lighthouse at 152 West Lehigh Avenue. Through its lecturer and demonstrator, in the last year, the society has instructed several thousand children in hygiene, with special reference to the prevention of tuberculosis. The society is making an investigation of the care of tuberculosis convicts in the prisons of the state and a report of the survey of Philadelphia's tuberculosis equipment will soon be published.

TENNESSEE

Sanatorium Changes Name.—The Boyd Memorial Tuberculosis Sanitarium, Knox County, announces its change of name to the East Tennessee Sanitarium.

Gift to Medical College.—Mr. Julius Rosenwald, Chicago, has agreed to give $2,500 annually to the Meharry Medical College, Nashville, for five years, providing that $37,500 additional is raised during that time.

State Board Short of Funds.—At a recent meeting of the State Board of Health it was shown that the board has less than enough money to meet current expenses, while the epidemic fund is less than $3,000. It was reported that $11,091 01 had been expended by the board prior to March 2 of this year.

Health Officers' Meeting.—The second annual meeting of the Tennessee Health Officers' Association was held in Nashville, April 2-4, under the presidency of Dr. K. S. Howlett, Franklin, and the following officers were elected: president, Dr. W. E. Hibbett, Nashville; vice-president, for East Tennessee, Dr. J. F. Arnold, Limestone; for West Tennessee, Dr. C. T. Love, Alamo, and for Middle Tennessee, Dr. T. O. Bratton, Watertown; and secretary-treasurer, Dr. John B. Steele, Chattanooga.

State Society Meeting.—The seventy-ninth annual meeting of the Tennessee State Medical Association was held in Chattanooga, April 9-11, under the presidency of Dr. C. J. Broyles, Johnson City. Nashville was selected as the next place of meeting and the following officers were elected: president, Dr. O. Dulaney, Dyersburg; vice-presidents, Dr. Zeb L. Shipley, Cookeville, for Middle Tennessee; Dr. G. R. Livermore, Memphis, for West Tennessee and Dr. W. J. Matthews, Johnson City, for East Tennessee; secretary, Dr. Perry Bromberg, Nashville (reelected), and treasurer, Dr. W. C. Bilbro, Murfreesboro.

Military-Medical Notes.—The Adjutant-General has been advised that the camp of instruction for officers of the medical department will be held at Chickamauga, Ga., May 11 to 18. ——The Medical Examining Board of the Tennessee State National Guard, composed of Surgeon-General J. H. McCall, Huntingdon, and Captains Larkin Smith, Nashville, and J. W. Moore, examined the following applicants for the medical corps at its last meeting: Drs. J. O. Nichols, Etowah; A. Smith, Lafollette; W. Frank Massey, J. F. H. Gallagher and Frank P. Head, Nashville.——The officers and enlisted men of Knoxville County were inoculated with antityphoid serum, March 15.

Personal.—Dr. J. S. Dye, chief of the summer staff of Erlanger Hospital, Chattanooga, entertained the members of the staff at his home, April 5.——Dr. W. L. McCreary, Knoxville, has been reappointed a member of the State Board of Medical Examiners.——Dr. J. O. Woods, Morristown, has been appointed physician at the lock and dam on the Tennessee River, below Chattanooga.——Dr. J. A. Albright, Nashville, formerly secretary of the State Board of Health, has been appointed agent of the Citizens' National Life Insurance Company, with headquarters in Nashville, and with Arkansas, Mississippi and West Tennessee as his territory.——Dr. W. T. Watson, Lexington, fractured his left femur, March 10, in a runaway accident.——Dr. P. B. Lusk, Jackson, was operated on in St. Thomas Hospital, Nashville, for a deep-seated abscess, March 13, and is reported to be doing well.

VIRGINIA

Hospital Opens.—The new Grace Hospital, Richmond, was opened March 12, with a reception by Drs. Robert C. Bryan and H. Stuart MacLean, from midday to 9 p. m., and inspection of the building by the invited guests. The institution represents an expenditure of about $80,000, is four stories in height and of fireproof construction.

Sanatorium News.—The State Board of Health has decided to erect at once a receiving hospital and examining staff in connection with the State Tuberculosis Sanatorium, Catawba, at a cost of $40,000. In this institution, patients who desire to enter will be received and examined. If it is decided not to admit them at Catawba, they will be given treatment at the reception hospital.——Dr. A. M. Showalter, Christianburg, has begun excavation preparatory to erecting a sanatorium at Cambria.

GENERAL

First Aid on Pullman Cars.—The Pullman Company has completed plans for the installation of first-aid packages on all cars of the company.

Clinical Congress.—The third annual session of the Clinical Congress of Surgeons of North America will be held in New York City, November 11-16.——Dr. Franklin H. Martin, 31 North State Street, Chicago, is secretary.

New Officers.—Medical Association of the Isthmian Canal Zone, at Ancon Hospital, March 13: president, Dr. W. E. Deeks; secretary-treasurer, Dr. Howard V. Dutrow, both of Ancon.——Grand Chapter of Omega Upsilon Phi Medical Fraternity, at Buffalo, March 13-15: Dr. H. A. Smith, Buffalo, senior grand master; Dr. N. W. Strohm, Buffalo, grand scribe.

Prize Offered for Public Health Booklet.—The local medical society of Berne offers a prize of $100 for the best popularly written pamphlet suitable to be given to young married people to aid them in maintaining their own health, and to ensure and rear healthy and robust children. The pamphlet can be written in either French or German and must be in the hands of the secretary before June 1, 1912. Address Professor Lindt, Ziegelerstrasse 8, Berne, Switzerland.

Doctors on the Titanic.—On the passenger list of the *Titanic*, which was sunk by ice off the coast of Newfoundland, April 15, appear the names of Dr. Arthur Jackson Brewe, Philadelphia; Dr. and Mrs. Henry W. Frauenthal, New York City; Dr. W. E. Minahan, wife and daughter, Fond du Lac, Wis.; Dr. and Mrs. Washington Dodge and son, San Francisco. Dr. W. F. N. O'Loughlin was surgeon and Dr. J. E. Simpson, assistant surgeon of the steamer. Later advices are that Dr. and Mrs. Frauenthal, Mrs. and Miss Minahan, Dr. and Mrs. Washington Dodge and son, are safe on the *Carpathia*.

Bequests and Donations.—The following bequests and donations have recently been announced:

German Hospital, Chicago, $20,000; Alexian Brothers' Hospital, Chicago, $5,000; Michael Reese Hospital, Chicago, $5,000; St. Joseph's Hospital, Chicago, $5,000, by the late William C. Seipp.

Mount Sinai Hospital, New York City, $10,000; German Hospital, New York City, $5,000, by the late Ernest Tahlmann.

Nassau Hospital, Mineola (L. I.), N. Y., $100,000, by Mrs. Alice A. Hicks, Westbury, L. I.

German Hospital and Dispensary, New York City, $2,000, by a benefit given by the Ladies' Aid Society.

Ithaca (N. Y.) City Hospital, a "generous and substantial legacy," probably about $100,000, by the late Edward M. Marshall.

International Accident Congress.—The third international gathering to discuss the laws in regard to accidents in various countries and all questions relating to accident insurance, estimation and treatment of the consequences of accidents, trauma as a factor in tumors and other phases of accidents, will be held at Düsseldorf, Aug. 6-10, 1912. The subjects of traumatic neuroses and hernias are not to be taken up at this meeting at all, but special attention is to be paid to the examination of persons after accidents and to measures aiming to restore normal functioning. For further information address Professor Liniger, Düsseldorf, Germany.

Sanitary Association Meeting.—At the fifth annual meeting of the Lake Michigan Sanitary Association, held in Hammond April 4, the creation, by legislative enactment, of a sanitary district covering all the Indiana territory drained by the Little and Grand Calumet Rivers and their tributaries, and the establishment of a sanitary commission with liberal power to tax the territory were recommended. The following officers were elected: president, A. J. Horlick, Racine, Wis.; vice-presidents, Drs. George B. Young, Chicago, and F. A. Tucker, Noblesville, Ind.; secretary, W. R. Humphrey, Chicago, and executive committee, Prof. E. Bartow, Champaign, Ill.; Langdon Pearce, Chicago; Dr. C. H. Sutherland, Janesville, Wis.; Dr. G. A. Bading, Milwaukee; Dr. R. L. Dixon, Lansing, Mich.; J. A. Glodgett, Grand Rapids, Mich.; Dr. A. J. Lauer, Whiting, Ind., and C. D. Davidson, Gary, Ind.

International Congress on Hygiene and Demography.—At a recent meeting in New York of the committee on organization of the coming Congress on Hygiene and Demography a provisional program was adopted for the five day meeting which is to begin Monday, Sept. 23, 1912. The evenings of Monday, Tuesday and Wednesday of the session are each to be devoted to some distinguished visitor. Among those who have already accepted are Sir Thomas Oliver, London, and Prof. Max Rubner, Berlin, who have consented to deliver special addresses. An invitation has also been extended to Professor Laveran of Paris. Twenty-six federal bureaus have accepted the invitation to participate in the exhibition and the Department of State has repeated its invitation to the seven states which had not accepted the previous invitation. An appropriation will be asked of Congress for the exhibition. The president of the United States will address the congress on the morning of September 23. June 1 is the latest date on which abstracts of papers will be received and July 1 the latest date for receiving full papers. Among those of international reputation the following will address the congress: Dr. Max Rubner, director of the Physiologic Institute of Berlin University, who will deliver an address to the congress on the following subject: "An exposition of the significance of hygiene and demography in the sanitary intercourse of nations with special emphasis on cooperative international work and a historic review of what has hitherto been accomplished." Sir Thomas Oliver, one of the world's authorities on industrial hygiene, has selected for his subject, "Dust and Fume, the Foes of Industrial Life." Dr. Jacques Bertillon, chief of the Bureau of Municipal Statistics of Paris, well known as the moving spirit in the compilation of the international classification of the causes of death, will address the congress on some demographic subject. The presidents of the nine sections of the congress are rapidly filling programs which promise to be replete with papers of importance on hygienic questions.

Agramonte and Finlay for Nobel Prize.—As THE JOURNAL (March 2, page 645) announced as an expected event, the Academy of Sciences, the Medical Faculty of the University of Havana and several other scientific societies and institutions have passed a joint resolution in which the names of Drs. Carlos J. Finlay and Aristides Agramonte are presented to the Nobel Prize Commission as candidates for the prize in

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medicine to be awarded in 1912. Dr. Agramonte is the only survivor of the U. S. Army Board, composed of Drs. Reed, Carroll, Lazear and himself, which demonstrated the transmission of yellow fever by the mosquito *Stegomyia calopus*, at the same time showing that "fomites" are absolutely innocuous. Dr. Agramonte and his colleagues fixed the points on which subsequent successful prophylactic campaigns were based, such as the infective period in man, the period of incubation of the disease and the length of time before the contaminated insect became capable of infecting. Dr. Finlay is said to have been the first one to claim the transmission of yellow fever from the sick to the susceptible individual by means of the mosquito; he studied many of the epidemiological conditions which pointed to the mosquito's agency in this particular and also many other meteorologic and telluric influences, its habits and peculiar resistance to adverse circumstances; he also made a number of inoculations which failed to carry conviction at the time, and which to-day we know must have given negative results because of the technic employed. Nevertheless, Dr. Finlay defended his theory for twenty years and presented a plan for the extinction of yellow fever very much like the one subsequently put into practice in Cuba and later in Mexico, New Orleans and Brazil with such brilliant results. The experiments of the U. S. Army Board which converted the theory into practical results, have been repeated by various investigators at home and abroad, thus complying with the fundamental requirement of the Nobel Prize Commission.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, March 30, 1912.

Life Insurance and Total Abstinence

The report of the Scepter Life Association contains an instructive comparison between the mortality of its abstaining and non-abstaining policy-holders. In 1911, in the general section, the mortality was 77.78 per cent. of the expected; that is, there were 105 out of 135 expected deaths. In the temperance section the mortality was only 51.11 per cent. of the expected deaths, or sixty-nine out of 135. For the last twenty-eight years the percentage of actual to expected deaths has been in the general section, 79.7; in the temperance section, 52.45. It is to be noted that both classes of policy-holders are of the same social status, engaged in the same occupations and have both passed the same medical examination. It is possible that some of the non-abstainers may shorten their lives by giving way to drink, but they can only be a small proportion. The examining physicians are alert and would not pass any one of intemperate habits. Moreover, the proposer must make a declaration of sobriety. The conclusion is therefore drawn that total abstinence tends to longevity. As usual, in such reports, no attempt is made to exclude an important source of fallacy. Persons who adopt total abstinence are more careful in all their ways of life than the average citizen. They are more thrifty, pay more attention to hygiene, etc. These factors must play some part in their longevity, yet to abstinence from alcohol is given all the credit.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, March 29, 1912.

Personal

The Académie des Sciences, in its last session, elected M. Metchnikoff, sub-director of the Pasteur Institute, as a foreign associate in place of Sir Joseph Dalton Hooker of Kew, deceased.

Virulence and Contagiousness of the Perspiration of Tuberculous Patients

On March 26 Professor Poncet of Lyons presented before the Académie de médecine a study of this subject by Dr. Piery, who attended a number of consumptives, most of whom lived in lodgings each, in many instances, consisting of a single room used by the patient with the patient's wife or husband and numerous children. Dr. Piery was impressed on the one hand by the absence of tuberculous infection in the children playing on the floor in the midst of sputum, carrying to their mouths culinary utensils and other objects much soiled by the bacillus of Koch—in short, surrounded by ideal conditions of contamination—and, on the other hand, by the frequent infection of the patient's husband or wife, who was, perhaps, equally exposed apparently, but capable of taking prophylactic precautions unknown to the children. He endeavored to trace the cause of this apparent contradiction. The researches of Professor Poncet and his pupils with regard to the septicity of the perspiration of the hands and the infection of surgical wounds by perspiration from the hands of the surgeon gave him the idea of investigating the possible virulence of the perspiration of the tuberculous patient as a cause of the frequency of conjugal tuberculosis. It appears from his investigation that the perspiration of tuberculosis patients is virulent in 30.76 per cent. of cases (surgical lesions, tuberculous rheumatism and tuberculous peritonitis, that is to say, in securely closed and slowly progressing lesions). In 41.66 per cent. of tuberculous cases the perspiration may be the vehicle of tubercle bacilli. This elimination of the tubercle bacillus through perspiration seems an argument in favor of the frequent septicemic nature of tuberculous infection. The heavy perspiration of the tuberculous may be considered as crises of elimination of the bacillus. At all events, perspiration is the agent of contagion, dangerous in itself, directly or indirectly, and should be guarded against by disinfection of clothing and other objects soiled by tuberculous perspiration and by isolation of the patient—at least, the use of a separate bed. The endeavor to combat overcrowding by the establishment of cheap dwellings is an urgently needed measure of social prophylaxis.

Protection of Young Children

The minister of the interior has just issued a report of the administration of the law in 1909 in regard to the protection of the young children. Out of 128,483 children coming under the operation of the law, there were 117,801 legitimate children and 10,682 illegitimate. Most of the children were fed by artificial means. Only 39.5 per cent. were breast-fed. There were 8,973 deaths or 4.92 per cent. The expenses of the service were $413,236 (2,066,184 francs). The report concludes by a statement of the constant improvement in the application of the law, which is aided materially by numerous private organizations.

Reestablishment of the Functions of the Superintendent of Practical Anatomic Instruction in the Paris Medical School

The minister of public instruction has just reestablished the functions of the *chef des travaux pratiques d'anatomie* which have been suspended since the nomination of Professor Nicolas. Following the recommendations of the commission for the reform of anatomic studies the minister has decided that the *chef des travaux* shall be appointed, after a competition, for a period of five years. This official is not to be a physician or a surgeon or an obstetrician of the hospital—a decision which will be satisfactory to the partisans of Professor Nicolas. The *chef des travaux pratiques d'anatomie* will have charge of all which pertains to practical instruction in anatomy.

Chloroform Anesthesia and the Adrenals

On March 5, Dr. Pierre Delbet, professor of the surgical clinic at the Faculté de médecine de Paris, read before the Académie de médecine a paper by himself and Drs. Herrenschmidt and Beauvy on their experimental and clinical researches on the fixation of chloroform in the suprarenal capsules, and its action on the fats of these glands and on the chromaffin substance and the epinephrin. They have ascertained that, after narcosis, the chloroform content of the suprarenal capsules is always higher than that of the blood and that under the influence of prolonged chloroform anesthesia the fat of the fasciculated zone of the suparenal capsules extends toward the medullary zone in proportion to the duration of the anesthesia. The anesthesia determines, therefore, the modifications of the medullary zone in which the chromaffin substance and the epinephrin diminish and even disappear.

Without intending to attribute all sequelæ of chloroform anesthesia to alterations of the suprarenal glands, Dr. Delbet is thoroughly convinced that certain of these sequelæ are due to these alterations, and that it is possible to diminish or avoid them by reenforcing the insufficient suprarenal function by injections of epinephrin or of extract of suprarenal glands. There are, indeed, certain sequelæ which are entirely attributable to suprarenal insufficiency. Operative shock is one of these. It is characterized essentially by asthenia and weakening of the pulse, which are the symptoms of suprarenal insufficiency. There is no surgeon who has not had to deplore the sudden death of some operative patient. A patient is observed in the evening, the next day or even the third day after an operation. Nothing in his condition appears alarming. The next morning one is astonished to learn that the patient died

during the night. It is in such cases that embolisms are talked of; and they are more often talked of than seen, but the treacherous aspect of death from suprarenal insufficiency is evident.

Since 1909 Dr. Delbet has used injections of epinephrin in all his operative patients. He began with 0.1 mg.—an absolutely insufficient dose. At present he injects as much as 0.4 mg., which seems sufficient for ordinary operations. In operations involving much trauma, he uses as much as 0.6 mg. at one injection. He has never used a larger amount in a single dose, but sometimes he repeats injections up to the point of giving 1 mg. a day. For a long time he made the injection at the end of the operation. Lately he has been making it at the beginning. The anesthesia is thereby made more regular, and there are none of those little annoyances which sometimes disturb the course of an operation.

Examinations have shown that in animals the suprarenal capsules recover their activity about twelve hours after the chloroform anesthesia. There are cases, however, in which suprarenal exhaustion is prolonged. Therefore, when the patient remains asthenic twenty-four hours after the operation, Dr. Delbet injects again 0.4 mg. epinephrin. It would doubtless be preferable to inject the complete extract of suprarenal capsules, since under the influence of anesthesia the cortical as well as the medullary portion is modified. The difficulty of securing good extracts has prevented him from doing so. According to Dr. Delbet's experience with more than one thousand patients, epinephrin administered subcutaneously diminishes and in the majority of cases entirely suppresses operative shock.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, March 29, 1912.

Personal

Professor Pankow of Freiburg has been chosen director of the gynecologic clinic at the Academy for Practical Medicine in Düsseldorf.

Professor Fürbinger, the director of the anatomic institute at Heidelberg, retires from the direction of the institute at the close of the summer semester; Professor Braus of Heidelberg has been chosen as his successor.

Professor Roepke of Jena has been chosen as the successor of Professor Heusner, the head of the surgical department of the Municipal Hospital at Barmen.

The Campaign Against Sleeping Sickness in German East Africa

Professor Steudel, the medical reporter for the imperial colonial office, has returned from his long tour of investigation in German East Africa and a few days ago delivered a lecture on the campaign against sleeping sickness in that country. The oldest focus of the disease is in the Bukoba region, west of Lake Victoria, where the infection is not indigenous, since the *Glossina palpalis* does not occur in that region; the disease was imported by natives who went from there to Uganda to get work. The plan of Robert Koch, who introduced in Kigarama the first sleeping sickness camp, consisted in collecting the patients and keeping them together until their cases terminated in recovery or death, in order to hinder a further spread of the disease by preventing sleeping sickness patients from wandering into districts in which the *Glossina palpalis* does not exist. This has been successful in that district as physicians have been able to make the stay of the natives in the camp agreeable and their chiefs (*Sultane*) have influenced the population in their favor; 800 patients were gradually collected in two camps, part of whom were cured by means of atoxyl, but the majority, in spite of treatment, have died, so that there are now only 300 patients in the camp, of whom 200 can be treated as ambulant patients. As it is forbidden to go to Uganda to look for work, there is a prospect that this focus will be extinguished in the course of a few years. To the east of Lake Victoria on the Mori River, sleeping sickness flourishes among the Wagaia, where 1,000 sick with it have been discovered. It has been found difficult in this region to concentrate the patients in camp because the people belong to a formerly very warlike race, who have been accustomed to wander about the country as nomad herders of cattle. Furthermore, it is difficult to detain in camp those who have the disease in a mild form, as they do not feel sick. Therefore, only the severely sick and delirious, who came of their own free will or were brought to the camp by their relatives, were received, while the essential fight is with the *Glossina* flies. As these insects love the shade and dampness and therefore frequent the bushes on the shores of the lake and river, a systematic clearing of the banks has begun. In districts where only a few people were living, the inhabitants were removed to places where none of these flies existed. In the opinion of the lecturer, such progress has been made through these measures that an infection with sleeping sickness is impossible on Lake Victoria. At his visit in that region only fifty-three patients were in camp, while the others were being treated as ambulant patients. The largest focus, with 7,500 sick, is found on Lake Tanganika among the very populous Urandi, who are only slightly under German influence—they pay no taxes—and oppose isolation by betaking themselves to the woods. For this reason the same system was successfully introduced as among the Wagaia, the patients being treated as ambulant patients until they were severely ill, and receiving two cents for each double injection of atoxyl, while the village elders also received a small present for each patient they brought in. The physicians practicing there succeeded in a short time in securing the confidence of the people, who were at first very shy, the physicians thus proving pioneers of civilization in the best sense of the word. Systematic work was done also in clearing the brush and destroying the reeds along the shores of the lake and the river and, in common with the Belgians, on the river that forms the boundary of Belgian Congo. Half of the work is already done. The expense for each band of 300 laborers amounts to 300 rupees, but this is richly repaid by the preservation of many human lives. Difficulties arise partly on account of the configuration of the rocky shores of the lake and on account of the extensive forests in which the disease is already so widespread among the population that relief seems to be possible only by moving the natives to other regions. Of other nations, only the English in Uganda have undertaken a systematic campaign against sleeping sickness, but in consequence of the enormous extent which the disease has already attained there, only the transportation of the population to districts free from the specific flies was undertaken. Steudel regards the German system as more radical and less of a hardship for the population. Some observations lately made in the southern part of the colony, on the Portuguese frontier, are of importance for the campaign against sleeping sickness. Persons with sleeping sickness have been found there in districts where the *Glossina palpalis* is not known, but the *Glossina morsitans*, the carrier of the tsetse-fly disease of animals is common. Trials with this fly have shown that it conveys the trypanosomes of sleeping sickness to apes. The fight against the morsitans would be more difficult, as this fly prevails generally, but for the present there is no danger, as the focus is only very small.

Annual Meeting of the German Association for the Advancement of Science

This year's session of the German "Naturforscher-Kongress," the eighty-fourth, is to be held at Münster in Westphalia, Sept. 15 to 21. Münster has, for many years, entertained the desire to possess a full university, there being no university throughout the large province of Westphalia. Some years ago in consequence of repeated pressure on the part of the city and province, the department of education determined to establish at least the beginning of a university, and several medical institutes have already been established there so that students can complete the necessary course of five semesters for the so-called "Tentamen physicum." It is quite reasonable to suppose that the city of Münster has invited this association to meet within its walls because it expects from this visit further assistance toward the fulfillment of its desire for the completion of the university. According to the program, so far published, the subjects of the addresses in the general session are: "Non-operative Treatment of Tumors," by Professor Czerny of Heidelberg; "Life and Love" (Leben und Liebe); "Wireless Telegraphy," "The Recent Development of Thermodynamics," by Professor Nernst of Berlin, and "Modern Military Surgery," by Professor Küttner of Breslau. In a joint session of the chief group of natural scientists there are to be four speakers on the theme of the science of life and its significance for the civilization of the present. In the joint session of the groups of natural sciences and of medicine there will be two speakers on "Heredity and Determination of Sex," and Professor Straub of Freiburg will speak on the importance of the cell membrane for the action of chemical substances.

Popular Lectures on Hygiene

The German association for popular hygiene *(Verein für Volkshygiene)* which as may be seen from its name has dealt for many years with the popularizing of a knowledge of

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hygiene, has lately formed a plan at the instigation of the Prussian minister of the interior to advance its purpose by placing easily understood pamphlets in the offices of physicians and dentists and in pharmacies. It will first, according to this plan, distribute 100,000 circulars furnished by the department of the interior on the most important communicable diseases. In addition there will be placed in the localities mentioned 1. a short, easily understood circular on the importance of public and personal hygiene; 2. circulars on the abuse of alcohol, the campaign against the spread of tuberculosis, and things injurious to plants and the like, which the imperial health office and the medical department of the Prussian department of the interior have published; 3. rules for the care of infants. All teaching with reference to the cure or treatment of disease will be avoided in these pamphlets. The public, on the other hand, will be advised to apply immediately to a physician on the appearance of illness. Instruction with reference to the damage done by quacks and nostrums will be included.

Establishment of a National Museum of Hygiene in Dresden

The originator and president of the recent international hygiene exposition at Dresden, Exzellenz Lingner, has petitioned the local authorities to establish a national museum of hygiene in Dresden. It is contemplated to use the hall, "Man" (*Der Mensch*), which proved the greatest attraction for visitors to the exposition, as the nucleus of the museum. The museum is to be designed to realize the important principle that every one shall gain by direct inspection the knowledge which will fit him for a sanitary and intelligent conduct of his life. For the completion of this self-instruction, popular weekly lectures are to be held, which will gradually cover the entire field for the care of health. In addition, the management of the museum shall provide scientific lectures and demonstrations for professional people, that is, for physicians, officials, engineers and the leaders of industry. An academy of scientific character is also proposed to supplement the museum. Lingner will present to the museum the objects exhibited at the exposition, which represent a value of $250,000 (1,000,000 marks). The land, which is reckoned at about 6,000 square meters, is to be donated by the city of Dresden. The expense of building and furnishing are reckoned at about $875,000 (3,500,000 marks). The expense of building will be defrayed first out of the surplus from the international hygiene exposition, amounting to $250,000 (1,000,000), while the government of the province (Saxony) will give the rest. The annual expenses are estimated at about $62,500 (250,000). Of this, the city of Dresden will furnish $37,500 (150,000 marks); the special income of the museum from entrance money and fees for attendance at lectures, etc., is estimated at $20,000 (80,000 marks). The rest, it is hoped, will be supplied by the rich and from other sources. The museum is to include three chief divisions, "Der Mensch," the historical division and the ethnologic division.

Increased Death Rate in Prussia in 1911

Although in 1910 the population of Prussia had increased as compared with 1876 from 26,000,000 to 40,000,000, the number of deaths was really less and the smallest in the past thirty-five years. Per 1,000 living the death rate had decreased from 25.6 to 16.1. On the other hand that of 1911 underwent again a marked increase. Dr. Behla of the Prussian statistical bureau makes a report of this subject in the last number of the *Berliner klinische Wochenschrift*. It is clearly shown that the cause was the intense heat of last summer. The third quarter shows an increase above the same period of 1910, 50,000 deaths or 32 per cent. and the increase in the cities is larger than in the country (for instance 34.7 per cent. as contrasted with 30.2). It is quite remarkable that all ages show an increase, but it is most in infancy. Here the increase as compared with 1910 is not less than 65.4 per cent. (76.2 in the cities, 57.8 in the country). As to the cause of death in the majority of cases, the increase was due to digestive disorders and heat stroke. The predominant influence of the heat is shown moreover in all countries; according to Behla's international estimate, one-third of a million deaths in Europe in 1911 should be attributed to the unusual temperature. Such an effect from the action of abnormally cold weather is not known. Behla remarks in conclusion that modern hygiene has inscribed the word preventable on its banner. Efforts at prevention should not be limited to the diseases of bacteriologic origin but should take a wider scope, including social and metereologic causes and above all must secure the means of protecting infants from the effects of overheating and nutritional disturbances.

Miscellany

The Ministrations of the Earthworm.—J. Newton Friend points out (*Science Progress*), that the chief activity of worms in the aeration of the soil lies in their power of excreting acids in their castings, of exhaling carbon dioxid, and of aerating the soil both by mechanical and by chemical means. He has made a number of observations on these points which show that the rôle of the earthworm amply repays study. Worms effect the aeration of the soil in a variety of ways. In burrowing through the soil the worm renders it more porous and permeable to gases, not merely by virtue of the air spaces formed, but by reason of the fact that the soil is thus continually kept in gentle motion. Again, the soil passing through the bodies of worms is excreted in a finer condition, being ground by attrition through the intestines. This increased fineness up to a certain limit means increased area, and hence greater susceptibility to the action of gases; beyond this limit the particles begin to cling together, and a proportionately less porous mass results resembling clay rather than ordinary soil. It was Darwin who estimated that no less than 15 tons of soil annually pass through the bodies of worms for every acre. Further, worms breathe in oxygen and exhale carbon dioxid, and the latter gas, as is well known, readily dissolves in water, forming an acid solution which will render alkaline earths and metallic oxids, e. g., iron—soluble. The amount of carbon dioxid exhaled in the course of a year by an active worm-inhabited acre would amount to 29.6 kilograms, or 15,000 liters. The interchange of oxygen and carbon dioxid effected by worms is thus considerable. Worms materially aid in producing soluble salts of iron in the soil when other agencies (e. g., dilute mineral acids) fail. The iron is eventually given back to the soil in a more soluble condition, and presumably in one which can be directly absorbed by plant roots. As Friend points out, worms probably have an important ministry to perform in the soil, and it is to be hoped that further researches in this direction will be undertaken, for the habits and distribution of the earthworm appear to have received little attention since the days of Darwin, or with the aid of modern scientific apparatus.

Arteriovenous Anastomosis for Impending Gangrene.—W. Greiffenhagen (*St. Petersburg. med. Wchnschr.*) reports a case of gangrene of the left foot and two years later of the right foot, compelling amputation. Four years after this the patient had symptoms suggesting impending gangrene of the right hand. Greiffenhagen made an anastomosis between the brachial artery and vein, which seemed normal. Great improvement in the pains and color of the arm resulted at first, but by the third day the circulation became defective and the forearm had to be amputated by the end of the week. An attempt to make an anastomosis in the other arm three months later for the same trouble failed and the arm was amputated at the same sitting. The sclerotic arteries in the arm last amputated had grown to the nerves. Greiffenhagen had had a similar case a few years previously in which the feet and hands had to be amputated in turn, the young man surviving for three years after the last amputation. This experience justified any attempt to save his last patient from such a fate, although such anastomosis operations have rarely succeeded.

The Care of Nervous Patients.—As a gardener waters his plants daily until they become strong and vigorous, so the physician should watch over his nervous patients, to interpret their symptoms, teach them to understand their significance, dispel their fears and sustain them against their hopelessness and depression. That one needs tact, adaptability and experience, as well as optimism and force, will be conceded, and in many instances—especially with intelligent patients—knowledge of general matters will help considerably. And even the illiterate will not think less of us when they learn we take an interest in affairs outside our profession and our libraries are not limited to medical literature.—J. J. Macphee in the *Post-Graduate*.

Marriages

LESTER HAYDEN HUMPHREY, M.D., Silver Springs, N. Y., to Miss Harriet Sophia Barber of Warsaw, N. Y., April 3.

HOWARD MILTON LEINBACH, M.D., Reading, Pa., to Miss Gertrude E. Hyndman of Pen Argyl, Pa., March 29.

ARTHUR J. TAVEIRA, M.D., New Bedford, Mass., to Miss Camella la Rosa of Lisbon, Portugal, recently.

GARNETT W. QUILLIAN, M.D., Atlanta, to Miss Rosalie Beacham of Spartanburg, S. C., January 31.

LISTER COLLINS, M.D., to Miss Mary Brown, both of Mount Eden, Ky., at Jeffersonville, Ind., March 28.

HENRY OSCAR HOVELSON, M.D., Osage, Ia., to Miss Effie Church of Bloomingdale, Ind., March 31.

OLIN BERTRAM NORMAN, M.D., Bedford, Ind., to Miss Grace Cromer of Anderson, Ind., February 28.

REV. JOSEPH CANNON ELLIS, M.D., to Rev. Mary H. Munford, both of Philadelphia, April 3.

Deaths

William Henry Banwell, M.D. Cincinnati College of Medicine and Surgery, 1871; a veteran of the Civil War; until 1881 a practitioner of South Charleston, Ohio, and since that time a resident of Harlan County, Nebraska; for many years a member of the American Medical Association; some-time president of the Clark and Greene County (Ohio) Medical Society and Harlan County (Neb.) Medical Society; department commander and department medical director of the Grand Army of the Republic in Nebraska; coroner of Harlan County; a member of the Nebraska State Legislature; local surgeon of the Burlington and Missouri River Railway at Orleans; died at his home in that place, March 31, aged 79.

Charles Potts Britton, M.D. University of Pennsylvania, Philadelphia, 1873; a member of the Medical Society of the State of Pennsylvania and formerly a member of the American Medical Association; until 1882 physician to St. Francis Hospital and the New Jersey State Asylum for the Insane, Trenton; for several years a member and president of the Trenton Board of Health; died at his summer home in Bushkill, Pa., March 29, from cerebral hemorrhage, aged 66.

Willis M. Wells, M.D. University of Vermont, Burlington, 1874; a member of the Medical Society of the State of New York; past president of the Oswego County Medical Society and Academy of Medicine of Fulton and a member of the board of governors of the Fulton City Hospital; died at his home in Fulton, March 30, from cerebral hemorrhage, aged 61. At a special meeting of the Fulton Medical Society, April 2, resolutions of regret and sympathy were adopted.

Oscar H. Hall, M.D. University of Buffalo, N. Y., 1868; a veteran of the Civil War; professor of renal diseases and practice of medicine in the University of Minnesota, College of Homeopathic Medicine and Surgery, St. Paul; a member of the staff of St. Paul Hospital for twelve years and a member of the State Board of Medical Examiners; died at his home, April 2, aged 70.

Theophilus Westmoreland, M.D. Vanderbilt University, Nashville, Tenn., 1855; formerly a member of the Tennessee State Medical Association; surgeon in the Confederate service during the Civil War; for many years president of the board of control of the State Agricultural School, Athens, Ala.; died at his home in Athens, March 7, from senile debility, aged 79.

James L. Shirey, M.D. Starling Medical College, Columbus, Ohio, 1885; a member of the Ohio State Medical Association; of Akron; fell down stairs in a drug store in that city, April 6, sustaining a compound fracture of the right wrist, several severe scalp wounds and a concussion of the brain, as a result of which he died in the Akron City Hospital, April 8, aged 60.

Floyd W. Rogers, M.D. University of Maryland, Baltimore, 1902; formerly a member of the American Medical Association; a member of the Rhode Island Medical Society; who fractured his right hip at his home in Wickford, R.I., March 13; died in the Newport Hospital March 26 from heart disease, a day after an operation for wiring the broken bone, aged 52.

John Gerard Vogt, M.D. Washington University, St. Louis, 1886; Homeopathic Medical College of St. Louis, Mo., 1890; a member of the Illinois State Medical Society, and once president of the Clinton County Medical Society, for four years president of the Board of Education of Trenton; died at his home in Trenton, March 26, aged 49.

Charles Mortimer Smith, M.D. Rush Medical College, 1860; Bellevue Hospital Medical College, 1873; assistant surgeon of the Thirteenth Wisconsin Volunteer Infantry throughout the Civil War and for more than fifty years a practitioner and for several terms president of the village board of Evansville; died at his home, April 1, aged 77.

Rafael Echeverria, M.D. University of Havana, Cuba, 1885; a member of the Hillsboro (Fla.) Medical Society; for many years a resident of Tampa, assistant surgeon in the army during the Spanish-American war, with service in Cuba, and afterwards major and surgeon of U. S. volunteers; died at his home in Tampa, April 1, aged 60.

Auguste Renouard, M.D. Missouri Medical College, St. Louis, 1859; assistant surgeon in the Confederate service during the Civil War; for a time lecturer on surgery in his alma mater; a pioneer embalmer and at the head of the Renouard School of Embalming, New York City; died at his home March 16, from arteriosclerosis, aged 73.

Thomas De Lap Smith, M.D. Medical School of Maine, Brunswick, 1867; formerly a member of the American Medical Association; a fellow of the Massachusetts Medical Society; for a time examiner to the New York State Board of Health, but of late years a practitioner of Roxbury, Boston; died at his home, March 20, aged 75.

George Arthur Brown, M.D. Ohio Medical University, Columbus, 1898; of Barberton, Ohio; a member of the American Medical Association; for four years health officer of Barberton; who was taken to the Akron Hospital, August 4, for a minor operation, died April 6, from cerebral embolism, aged 38.

John Evans Mackall, M.D. University of Maryland, Baltimore, 1908; a member of the Medical and Chirurgical Faculty of Maryland; for two years a member of the staff of the Atlantic Coast Line R. R. Hospital, Rocky Mount, N. C.; died at his home in Elkton, April 4, from typhoid fever, aged 29.

John W. C. White (license, South Dakota, ten years of practice, 1890); formerly a member of the American Medical Association; for a time circuit judge at Deadwood, S. D., and a practitioner of Plankinton for seventeen years; died at the home of his daughter in Acorn, Neb., recently, aged 72.

Henry Clay Miner, M.D. Northwestern University Medical School, Chicago, 1875; a member of the Kansas Medical Society; formerly a member of the Kansas State Board of Health; a practitioner since 1865; died at his home in North Topeka, April 4, from disease of the liver, aged 69.

James N. Day, M.D. Medical College of Ohio, Cincinnati, 1874; a member of the Iowa State Medical Society; vice-president of the Henry County Medical Society in 1911; for several terms a member of the city council of Mount Pleasant; died at his home March 31, from heart disease, aged 61.

Albert Franklin East, M.D. Jefferson Medical College, 1893; a member of the Medical Society of the State of Pennsylvania and of the staff of the Reading Hospital Dispensary; died suddenly at the home of his brother-in-law in Burlington, N. J., April 5, from cerebral hemorrhage, aged 41.

Marley Milfred Lockwood, M.D. College of Physicians and Surgeons, Baltimore, 1890; a member of the Medical Society of the State of California; formerly a practitioner of Hallock, Minn., and coroner of Kittson County; died at his home in Colusa, April 2, from nephritis, aged 45.

William S. Jackson, M.D. University of Michigan, Ann Arbor, 1898; of Houghton, Mich.; a member of the Michigan State Medical Society and physician of Houghton County; died in Hicksville, Ohio, recently from uremia, aged 42, and was buried in Houghton March 14.

Charles Vincent Burke, M.D. College of Physicians and Surgeons, New York City, 1894; a member of the American Medical Association; formerly a practitioner of Newark, N. J., but for eight years a resident of Montana; died at his home in Dupuyer, recently, aged 40.

Joseph Osburne McKee, M.D. Detroit Medical College, 1874; a member of the Medical Society of the State of Pennsylvania and the McKeesport Academy of Medicine; died in the McKeesport Hospital, April 6, three days after an operation for carcinoma, aged 58.

Abraham Jeremiah Hammer, M.D. Pulte Medical College, Cincinnati, 1880; in charge of the medical and surgical departments of the Lucas County (Ohio) Infirmary; died at his home in Toledo, April 5, from septicemia, due to an operation wound, aged 58.

George Rhoades, M.D. Hahnemann Medical College, 1889; surgeon to the Wesson Memorial Hospital, Springfield, Mass., and oculist and aurist to the Hampden Homeopathic Hospital; died at his home in Springfield, March 29, from acute gastritis, aged 52.

Horatio N. Atkinson, M.D. Bennett Medical College, Chicago, 1898; for several years surgeon for the Dolores mines at Madera, Chihuahua, Mexico, and later of Humble, Texas; died in the Sealy Hospital, Galveston, March 28, from gastric ulcer, aged 33.

Ephraim Pearson James, M.D. University of Toronto, Ontario, 1902; for four years surgeon on transatlantic steamers, but for the last six years a practitioner of Galt, Ont., was found dead in his office, March 27, from heart disease, aged 33.

Henry Martin Blake, M.D. Bellevue Hospital Medical College, 1869; a member of the Maine Medical Association; for one term a representative in the state legislature; died at his home in Monmouth, April 7, from double pneumonia, aged 75.

Avelin Hurbert Street, M.D. New York; since 1869 a practitioner of medicine and dentistry of Albert Lea, Minn.; for several years justice of the peace; died at the home of his niece in Alden, Minn., March 13, from senile debility, aged 78.

Madison W. Culp, M.D. Medical College of the State of South Carolina, Charleston, 1881; a member of the South Carolina Medical Association; died suddenly at his home in Union, March 30, from cerebral hemorrhage, aged 54.

Acestes Grant Loder, M.D. University of Pennsylvania, Philadelphia, 1897; for several years demonstrator of anatomy in the Pennsylvania College of Dental Surgery, Philadelphia; died at his home in that city, April 5, aged 47.

Robinson Bell, M.D. Western Reserve University, Cleveland, 1883; formerly coroner of Cuyahoga County, Ohio, and a practitioner of Cleveland; died suddenly in his office in Toledo, March 29, from heart disease, aged 52.

James Irving Rasbach, M.D. Bellevue Hospital Medical College, 1876; for eighteen years a member of the board of education of Ilion, N. Y.; died at his home in that city, March 27, from cerebral hemorrhage, aged 59.

James N. Stanton, M.D. Atlanta (Ga.) Medical College, 1859; for many years a practitioner of Warrenton, Ga.; a Confederate veteran; died at his home in Marietta, January 20, from pneumonia, aged 74.

John Early Logan, M.D. Jefferson Medical College, 1859; one of the best-known and most generally-esteemed practitioners of Guilford County, N. C., died at his home in Greensboro, March 31, aged 76.

John Phelps Shumway, M.D. Albany (N. Y.) Medical College, 1860; formerly of Geddes and Syracuse, N.Y., but since 1890 a resident of Los Angeles, Cal.; died at his home in that city, March 17, aged 75.

William Harrison Evans, M.D. University of Michigan, Ann Arbor, 1865; University of Wooster, Cleveland, Ohio, 1866; died at his home in Sanford, Fla., March 25, from cerebral hemorrhage, aged 72.

George L. Peaslee, M.D. Castleton (Vt.) Medical College, 1848; for twenty years a practitioner of Wilton, Me., and thereafter of Auburn; died at his home March 3, from senile debility, aged 82.

Henry Melgrove Adams, M.D. Medical School of Maine, Brunswick, 1849; for many years a practitioner of South Dakota; died at his home in Blunt, March 2, from senile debility, aged 88.

John Allen Hubbs, M.D. Physiomedical Institute, Cincinnati, 1860; formerly of Brownsville and Charleroi, Pa.; died at his home in Youngstown, Ohio, March 27, from senile debility, aged 72.

Charles S. Smith, M.D. University of Buffalo, N. Y., 1890; a member of the Steuben County Medical Society; died suddenly at his home in Campbell, March 29, from acute gastritis, aged 47.

Eli L. Schlotterback (license, Ind., 1897); for many years a practitioner of South Bend, and for thirty years a practitioner of Ligonier; died at his home April 1, from acute gastritis, aged 70.

Walter James Webb, M.D. University of Bishop College, Montreal, 1897; a fellow of the Massachusetts Medical Society; died at his home in Cambridge, Mass., March 24, aged 41.

William Enoch Hoag, M.D. New York University, New York City, 1874; a physician and dentist of New York City; died at his home, April 2, from arteriosclerosis, aged 70.

Henry T. Wilbanks, M.D. University of Louisville (Ky.) 1894; formerly of Caps, Texas; died at his home in Dodsonville, Texas, March 12, from pneumonia, aged 41.

C. M. Dodge (license, practitioner, Iowa, 1886); for many years a practitioner and postmaster of Griswold, Ia.; died at his home March 26, from senile debility, aged 85.

James Oglesby, M.D. Jefferson Medical College, 1868; a member of the American Medical Association; died at his home in Danville, Pa., February 21, aged 71.

William T. Arnold, M.D. University of Maryland, Baltimore, 1875; a physician and dentist of West Baltimore; died at his home March 31, from heart disease, aged 67.

James H. Hartwell, M.D. University College of Medicine, Richmond, 1897; of Stewartsville, Va.; died in the Jefferson Hospital, Roanoke, Va., March 28, aged 38.

Jefferson T. Colliver, M.D. Eclectic Medical Institute, Cincinnati, 1865; of San Bernardino, Cal.; died in the Angelus Hospital, Los Angeles, March 15, aged 70.

James Weller Hughes (license, Ind., 1899); a practitioner of Waterloo and Bristol, Ind., since 1872; died at his home in Bristol, April 6, from nephritis, aged 60.

Charles E. Moore, M.D. College of Physicians and Surgeons, Baltimore, 1883; of McKeesport, Pa.; died in a hospital in Pittsburgh, March 23, aged 57.

James H. Sternberg, M.D. Jefferson Medical College, 1856; one of the oldest residents of Waterloo, N. Y.; was found dead in his bed, March 26, aged 78.

Harry E. Yost, M.D. Louisville (Ky.) Medical College, 1895; health officer of Jackson County, Ind.; died at his home in Vallonia, April 7, aged 46.

Willard Eddy, M.D. University of Michigan, Ann Arbor, 1863; of Waterloo, Iowa; died in the Hill Sanitarium, Des Moines, March 21, aged 77.

John David Davis, M.D. University of Buffalo, N. Y., 1886; formerly of Westfield, N. Y., died at his home in Springville, N. Y., March 26, aged 52.

William Hewitt, M.D. Eclectic Medical Institute, Cincinnati, 1858; died at his home in Memphis, Tenn., March 17, from senile debility, aged 90.

Albert Stotiff Wilson, M.D. University of Michigan, Ann Arbor, 1894; died at his home in Bellevue, Mich., April 3, from heart disease, aged 44.

William A. Huff, M.D. University of Louisville, Ky., 1871; died at his home in Altamont, Kan., January 31, from cerebral hemorrhage, aged 65.

Frank W. Bailey, M.D. Starling Medical College, Columbus, Ohio, 1882; died at his home in Joplin, Mo., March 25, from paralysis, aged 52.

W. H. Little, M.D. Louisville (Ky.) Medical College, 1891; of Whitewright, Texas; died in the Baptist Sanitarium, Dallas, March 26, aged 45.

John Tiedemann, M.D. Long Island College Hospital, 1894; of Seattle, Wash.; died in that city, March 29, from uncinariasis, aged 46.

Herbert L. S. Chaplin, M.D. McGill University, Montreal, 1903; died at his home in St. Johns, Newfoundland, January 18, aged 31.

Daniel Winter, M.D. Homeopathic Medical College of St. Louis, Mo., 1886; died at his home in Columbus, Kan., March 25, aged 79.

William J. Edmundson, M.D. University of Tennessee, Nashville, 1882; died at his home in Napa, Cal., March 6, aged 60.

Thomas Joseph Backes, M.D. Bellevue Hospital Medical College, 1895; died at his home in New York City, March 31.

Mary L. Randall Morris, M.D. Halifax (N. S.) Medical College, 1899; died at her home in Truro, N. S., January 18.

J. D. Raines (license, Mo., 1883); of Maywood.; died suddenly in Palmyra, Mo., April 4, aged 73.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SANATOGEN

Cottage Cheese—The New Elixir of Life

The psychology of advertising is nowhere better exemplified than in the "patent medicine" and proprietary fields. The reason is evident. Knowing that the general tendency of the human organism is toward health rather than toward disease and that the "healing power of nature"—*vis medicatrix naturæ*—will account for a large proportion of recoveries from sickness, it is not to be wondered at that thousands of preparations sold for medicinal purposes receive credit that is entirely undeserved. The awarding of such undeserved credit is largely due to the universal tendency of those who are not trained in science to apply the *post hoc, ergo propter hoc* argument in all matters relating to health and disease.

John Smith suffers from a passing indisposition. When he recovers he credits his recovery to whatever he may have done just preceding that recovery. If he has received medical attention, the physician gets the credit; if he has taken "absent treatment," Christian Science is responsible; if he has taken sugar pills, "Prof." Munyon gets the praise—while, as a matter of fact, if he had taken none of these, he would have recovered since he was only temporarily indisposed.

Nor are laymen the only ones that fall into such errors. Many physicians who prescribe new, widely-advertised preparations are likely to give those products credit for whatever favorable change may take place in their patients' condition. This failing is not a modern one. In 1842 Dr. Benjamin Brodie wrote: "We have no doubt that many well-instructed medical practitioners have not sufficiently considered what course a given disease would take if it were left to itself; and as to others, it is not possible that they should have any real knowledge on the subject. With the majority of persons a recovery will generally pass for a cure."

While every physician is perfectly familiar with the facts just stated, it seems worth while to give them as a probable explanation of what is to follow. Within the last few years the medical profession and the public of this country have been asked to believe that a combination of cottage cheese—or its equivalent—with a small amount of glycerophosphates is capable, when sold under a proprietary name and with the right kind of advertising, of producing physiologic effects that are little short of marvelous.

The name of this elixir of life is Sanatogen, and it is doubtful if the history of modern advertising furnishes any more notable example of the commercial potentialities of publicity than that exhibited in the exploitation of this product. The Sanatogen advertising campaign is probably the most skilful piece of work of its kind ever done. On both sides of the Atlantic, every effort has been made to endow the advertisements with a dignity which, to those who know the very ordinary nature of the product advertised, is grotesquely out of keeping. Only the highest-class magazines and newspapers have been patronized; the "copy" has been so written as to appeal not to the ignorant but to the intelligent. Testimonials from men whose names are well known, even though by training and education they are incompetent to pass judgment on a product of this kind, and fulsomely laudatory letters from men whose education and training should have taught them better—both have been used with all the skill of the trained publicity man. In short, Sanatogen stands as a monument to the power of printers' ink.

The claims for this product have already been referred to in THE JOURNAL, but it will do no harm to bring them again before our readers. Here are some taken from advertisements:

"The Re-Creator of Lost Health."

"Sanatogen is . . . a rebuilding food."

" . . . revitalizes the overworked nervous system."

"Specific nerve tonic action."

"Most reliable and scientific of all nutrients."

" . . . *in certain diseases* it exerts a *specific action* which renders it a valuable adjunct to other curative measures."

"It stimulates metabolic activity of tissue cells and secures more complete oxidation of energy yielding elements."

"Sanatogen nourishes the system in a persistent, gradual, cumulative way, so that its best effects unfold themselves in a systematic, substantial progression to health and strength. It follows that a regular and prolonged administration of Sanatogen is necessary for the attainment of lasting results."

"Sanatogen is a scientific compound, every particle of which represents the finest concentrated, tissue-constructing nutriment, endowed with unique revitalizing and rejuvenating powers."

"Sanatogen contains over 700 per cent. more tissue-building, life sustaining nourishment than wheat flour."

Truly a wonderful preparation—if these statements are true! But they are false—most of them at least. And in that many who can ill afford it may be led to pay a ruinously high price for a very ordinary food, the statements are viciously and cruelly false.

In view of the properties with which Sanatogen is credited, its composition is naturally a matter of more than ordinary interest. What is this life-giving product? A package of Sanatogen was purchased and subjected to examination and analysis in the Association's laboratory. Our chemists report:

LABORATORY REPORT

Sanatogen is a fine, nearly white powder having a faint yellowish tinge. A circular which is enclosed in the package states:

"Sanatogen is a definite organic combination of 95 per cent. of pure, specially prepared casein and 5 per cent. of sodium glycerophosphate, . . . "

Qualitative tests indicated the presence in Sanatogen of casein, sodium, a phosphorous compound and glycerin or a glycerin compound. Starch and sugars were absent. Quantitative analysis showed that the composition of the specimen was essentially as follows:

Water (loss at 130 C.)	8.60
Ash	6.23
Casein and other proteins (N × 6.38)	83.10
Casein (N in precipitated casein × 6.38)	80.57
Proteins other than casein (by difference)	2.53
Sodium glycerophosphate ($NaC_3H_7O_6P$) (P in filtrate from casein precipitation × 6.79)	5.59
Insoluble matter	0.84
Undetermined	1.87

While these results show that the claims concerning the composition of Sanatogen are not entirely correct, they indicate that the essential element in Sanatogen is casein.

The slight variation between the composition claimed for Sanatogen and the composition as determined by chemical analysis is of minor importance. Whether there is 83 per cent. of casein as found by the Association's chemists or 95 per cent. as asserted by the manufacturers matters little. The important fact is that casein makes up about nine-tenths of the preparation and, as must be perfectly evident, Sanatogen derives whatever food value it may have from that casein. Casein is known in its commonest form as the curd in milk, or as "cottage cheese." After the cream has been separated, the milk which remains contains nearly all the casein and milk sugar originally present but practically none of the fat.

Whence comes the stimulation of metabolic activity, the wonderful nourishment of the system, the marvelous revitalizing and rejuvenating power claimed for Sanatogen? Not from the sodium glycerophosphate, for the consensus of opinion among leading physiologists indicates that phosphorus in the form of glycerophosphates has little influence on metabolism. Not from the glycerin, surely, for even granting that glycerin has food value the amount present is so small as to be negligible. The real source of energy in Sana-

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togen, then, lies in the casein which comprises about nine-tenths of its ingredients.

Of course Sanatogen, being composed largely of casein, has some food value. What that food value is may be seen by the accompanying table which compares the yield of energy for Sanatogen with that of a number of staple food products, the figures for the latter having been adapted from Professor Atwater's calculations. This table shows that, from the standpoint of economy in the purchase of energy, no other food in the list is so poor as Sanatogen. While the manufacturers claim that "Sanatogen contains over 700 per cent. more tissue-building, life-sustaining nourishment than wheat flour," the table shows that one dollar's worth of wheat flour contains as much energy as one hundred and ninety-seven dollars' worth of Sanatogen!

Kind of Food Material	Price per Pound	Cost of 1,000 Calories Energy	Calories Energy for One Dollar
Sanatogen	$4.54	$3.01	332
Celery	.05	.77	1,300
Eggs ($0.36 per doz.)	.24	.39	2,600
Beef, round	.14	.16	6,300
Milk ($0.07 per qt.)	.035	.11	8,850
Pork, loin roast	.12	.10	10,350
Butter	.30	.09	11,250
Mackerel, salt dressed	.10	.09	11,350
Cheese	.16	.08	11,850
Beef, stew meat	.05	.07	15,300
Wheat bread	.06	.05	20,000
Rice	.08	.05	20,250
Sugar	.06	.03	29,200
Pork, fat salt	.12	.03	29,500
Potatoes	.01	.03	29,500
Beans, white	.05	.03	30,400
Oatmeal	.04	.02	45,000
Cornmeal	.025	.02	65,400
Wheat flour	.025	.02	65,400

Like all "patent medicines," Sanatogen is exploited by the testimonial route. Actors, authors, politicians and not a few physicians—the latter, to the credit of the American profession, be it said, being chiefly Europeans—have testified to the wonderful properties of this product. Believing that it would be of interest to learn what scientific men thought of Sanatogen a letter of inquiry was written to several men whose training particularly fits them to express an impartial opinion on a question of this kind. The following inquiry, expressed in practically the same words, was propounded:

Is it possible for a product, even if it has the composition claimed for Sanatogen, to have properties as a food and medicine which are claimed for this preparation?

The replies to this inquiry are interesting and instructive, although they are what might have been expected from men whose judgment has not been warped by the glittering claims of the Sanatogen publicity agents.

Dr. Lewellys F. Barker, professor of medicine, Johns Hopkins University, medical department, says in part:

"If Sanatogen consists simply of casein and sodium glycerophosphate, it is pretty obvious that all of its good effects (except perhaps the psychic influence of taking an expensive and, to the layman, mysterious remedy) can be gotten by including milk and eggs in the food. . . .

"The objection to Sanatogen lies, it seems to me, not in the assertion of its proprietors that it is a 'food and a tonic,' but in the misleading of the public and physicians into the belief that it possesses extraordinary powers which make it worth while to pay the price charged for it in order to get it. Very extravagant claims are being made for it in advertisements in the lay press. If just as much, and more, good in the form of 'food and tonic' can be obtained from a dollar's worth of milk and eggs as from a dollar and ninety cent's worth of Sanatogen, it is surely the duty of the medical profession to inform the public of the fact."

Dr. Frank Billings, professor of medicine and head of the Department of Medicine, University of Chicago, expresses his opinion thus:

"Of course, the thing is a fraud both as a food and as a tonic. Even if it met all the requirements of the statements made of it by the makers, it would not be any more of a food than as much casein taken in milk and probably not as good; or any more than some other albumin taken in some other form. I do not know just what pharmacologists say of the glycerophosphate of soda, but so far as my own clinical observations go I never saw any result from its use that could be called specific, that is, due to the drug."

Dr. Richard C. Cabot, assistant professor of clinical medicine, Harvard Medical School, says:

"In reply to your letter respecting the properties of Sanatogen, I would say that in my opinion it is vastly improbable that it has the properties claimed for it in the advertisements which you enclosed to me. I have no doubt that it is a fairly good food. I see no reason to believe that the phosphorus that it contains has any special action."

Otto Folin, professor of biological chemistry, Harvard Medical School, expresses himself thus:

"For myself, or for any one who would take my advice, I would prefer a glass of milk to Sanatogen when hungry and plain glycerophosphate to Sanatogen when in need of a tonic.

"Medicated feed used to be sold for horses. To me the 'food tonic' combination represents one of the most unscrupulous fake ideas used by manufacturers of patented articles to fool the public."

Ludvig Hektoen, professor of pathology, University of Chicago, says in part:

"In my opinion, no attention whatsoever should be paid to the claims advanced in favor of 'Sanatogen' as food and as medicine, because the statements made in the advertisements of this product are extravagant, misleading and quackish."

J. H. Long, professor of chemistry and director of chemical laboratories, Northwestern University Medical School, expresses the following opinion:

"With every reading of the advertising literature of the Sanatogen Company I am more and more impressed by the gross exaggeration of the claims made for this mixture of casein and sodium glycerophosphate. Cow's milk contains 3½ to 4 per cent. of casein, associated with soluble phosphates. It is absurd to think that this casein after precipitation from the milk has a greater nutritive value than it has in its native condition. Casein, at best, is probably less valuable as a food than are certain other proteins, because of its lack of some of the amino groups essential in tissue building, and the addition of a glycerophosphate cannot supply this deficiency.

"This is not the first attempt to exploit casein preparations. The earlier efforts failed in practice because they were based on a wrong conception concerning the physiologic value and importance of this protein. The assumption that in the case of Sanatogen a 'definite organic combination' with the glycerophosphate is formed cannot be taken seriously by chemists. We have witnessed many such efforts to palm off mixtures as definite organic compounds, and in this way to claim for them a value in excess of that which they actually possess."

Graham Lusk, professor of physiology, Cornell University Medical College, after calling attention to the falsity of the claim that Sanatogen is "a life-sustaining agent in disease," says:

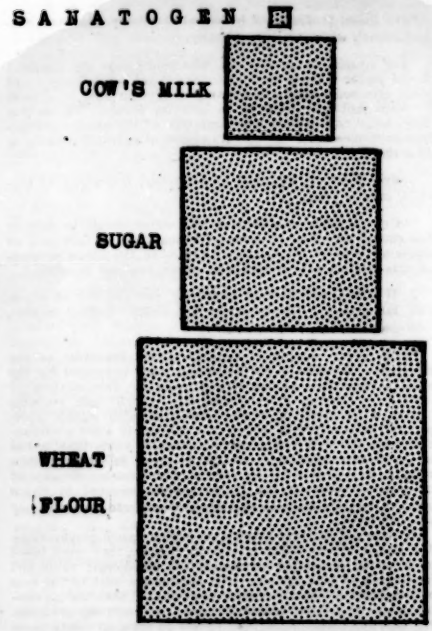
"If one considers the casein content alone, the dose of Sanatogen recommended in the circular would furnish, at best, about what is contained in a pint of milk, or one-fourth of the total of the protein necessities of the body—using a low protein requirement. That sodium glycerophosphate has any distinctly beneficial physiologic action has never, to my knowledge, been shown.

"It is a great pity that the public does not realize the splendid and economical value of milk, bread and the ordinary vegetables, cereals and meats, as true 'tonic food stuffs,' in contradistinction to prepared nostrums whose sale depends on a psychic stimulus applied to a susceptible populace."

H. Gideon Wells, associate professor of pathology, University of Chicago, says:

"There is nothing in my knowledge of physiologic chemistry which would lead me to believe that a mixture of chemically isolated casein and sodium glycerophosphate would possess any effect more favorable than that of a corresponding amount of milk. I can easily believe that it would be less valuable than milk. The successful practice of many commercial houses, of isolating one of the constituents of our food, and ascribing to it marvelous nutritive or therapeutic properties, is one of the most telling bits of evidence of the inadequacy of the education of the medical profession in physiology and physiologic chemistry that can be conceived."

The consensus of opinion thus expressed is only what might have been expected from men who could discuss the problem



WHAT ONE DOLLAR WILL BUY IN FOOD ENERGY! A COMPARISON OF THE CALORIC VALUES OF SANATOGEN, COW'S MILK, SUGAR AND WHEAT FLOUR. BASED ON THE TABLE ACCOMPANYING THIS ARTICLE.

in a purely judicial spirit and with a freedom from that bias which seems to be inseparable from the consideration of the simplest of mixtures that have been glorified by a proprietary name.

Herr Teufelsdröckh was right when he panegyrized clothes. And the worship of clothes is carried to the extreme nowhere so much as in the case of word-clothes. The most plebeian of things when bedecked in sufficiently imposing word-finery are endowed with the attributes of royalty before which the average intellect bows down. Neither cottage-cheese nor glycerophosphates, when exposed naked to the world, commands any overweening respect; combined and dressed in the magic word "Sanatogen," they receive the homage of those whose judgment is blinded by the glittering trappings of word-finery. Some day, possibly, there will be a democracy of intellect which will refuse to prostrate itself before mere word-raiment and will insist on appraising things at their naked worth. When that day comes, proprietary humbugs like Sanatogen will have become as extinct as the dodo and the great auk.

DR. WILEY AND SECRETARY WILSON

Collier's Weekly says: "Senator La Follette conducts a weekly magazine which, like the senator himself, is unceasing in its public service. It now takes up the relation of Dr. Wiley to those who, on his retirement, remain triumphant in the Department of Agriculture. Public health, as *La Follette's* says, is the foundation of national efficiency and greatness, and Wiley has spent a quarter of a century in the promotion of public health. It took twenty-five of his twenty-nine years of service to reach a point where the general interest had become strong enough to drive the courts into action, and the food and drugs act is more a monument to him than to any other one person. The adulterators and poisoners, beaten in Congress, found ardent aids in the Department of Agriculture. 'This situation, together with President Taft's 'gag rule,' which puts the hand of silence over the mouth of every bureau chief, left Wiley helpless. He could neither enforce the pure food law nor lift his voice in protest to the country. Had public opinion not been so much aroused, the false evidence which McCabe manufactured against Wiley, even at the risk of changing a document, would have been successful, backed as it was by Wickersham's recommendation that Wiley be punished. *La Follette's Magazine* is perfectly correct when it says: 'The press and the public demanded the removal of Wilson and McCabe and the other plotters. A year has passed since then, but these officials are still at their posts, hampering the enforcement of the food and drugs act and undermining the efficiency of the department.' That demand, in fact, was almost universal. Perhaps there is somebody who has a definite knowledge of *why* President Taft was willing to let Wiley go and to keep Secretary Wilson and Mr. McCabe. Our own opinion, which is merely a guess, is that it was less a positive wish of the President's than a feeble yielding to the influences about him. Secretary Wilson is an old man, and he wants to stay in office, and so no matter how much harm he does the President lets him stay there. What part Mr. Wickersham takes in this decision can only be surmised from his recommendation that Dr. Wiley be visited with 'condign punishment.'

"With Wiley away
The microbes will play.

"The New York *Evening Post* argues this current poetry unfair, on the ground that as the President found a good successor to Ballinger he may do as well in the Bureau of Chemistry. The cases are somewhat different. Ballinger was forced out, against the President's will, by public opinion. Wiley was forced out by intrigue, against the public's wish. What good can anybody do in Wiley's place, with McCabe, Dunlap and Wilson in control?"

Correspondence

Two Distinct Stages of Hunger

To the Editor:—I read with considerable interest the editorial entitled "What is Hunger?" (THE JOURNAL, April 6, 1912, p. 1018.) As I have had some little experience with hunger, both personally and among my hunting companions, I venture to contribute a few facts to the discussion.

To begin with, there are two distinct states called hunger. The first of these is familiar to every one. It is caused by the loss of one or two meals and is characterized by a desire for food and an empty feeling in the stomach. One may even

be "faint with hunger." One good meal relieves this kind of hunger which seems to be the only variety discussed by Professor Cannon.

If, however, food be wholly or largely withheld for several days this first variety of hunger almost entirely passes away. As soon, however, as the body loses much weight from starvation the first variety of hunger is replaced by a psychic state, which may be called the second variety of hunger. In this state the mind is wholly occupied with thoughts of food. One plods along all day keen for the least sign of game or lost in reveries of past feasts, but there is no sensation of hunger nor any particular bodily feeling referred or otherwise. At night over the camp fire the men discuss various articles of diet. Newfoundlanders wistfully describe "brouse," a murderous soup thickened with codfish, salt pork and dough; half-breeds long for "bannock"; Indians recall the delights of caribou eyes, fetus, marrow-grease and other aboriginal dainties. Nor is this obsession with thoughts of food confined to waking hours. I have never known a man to lose much weight from lack of food without dreaming of prodigal banquets. These dream feasts are a regular feature in the published accounts of starvation trips and are singularly constant.

The most interesting feature of this second variety of hunger is that it cannot be appeased until nearly all of the weight lost from starvation is regained. As long as the sufferer is thin he is hungry. He may eat again and again till his abdomen hurts, yet he is never satisfied. The abnormal hunger of typhoid convalescents is a familiar example of this fact, but it is more noticeable in otherwise healthy people who have been living a vigorous life on insufficient food. After returning from a starvation trip, although the stomach may be as full as it will hold, a dry crust in the gutter looks appetizing and attractive. One of the most striking instances of the difficulty of appeasing this kind of hunger occurred to me while hunting with six Indians. For a long time we had bad luck and became gaunt and thin. Some of us even lost strength which, I think, only occurs after all the subcutaneous and abdominal fat is absorbed. Finally one of the Indians killed a grizzly bear, not quite full-grown but in good condition and very fat. For forty-eight hours we did nothing but eat and sleep and in that time we ate the whole bear except for a few scraps. As nearly as I could figure out, each of us ate 40 pounds of fat meat, clear of waste, in the two days. In consequence we all had diarrhea. After such feasts there is a feeling of lassitude apparently due to mild proteid poisoning. The urine also acquires a strong animal odor varying with the species of animal supplying the meat.

Yet in spite of these symptoms of repletion of the stomach, bowels and blood with alimentary matter, the feeling of hunger, the desire to eat, persists. To judge by their actions, sledge dogs are the same in this respect as human beings.

It seems to me that the only explanation of these phenomena is to assume that there is a psychic state characterized by a desire to eat caused by the absorption from the fat-cells of the body of their accustomed oil-droplets.

It would be an improvement in the accuracy of the English language if we always characterized the first of these two states by the word "appetite" and reserved the word "hunger" for the second.

DAVID E. WHEELER, Buffalo, N. Y.

Digipuratum

To the Editor:—We have read with great interest the editorial on the reliability of digitalis and ergot preparations in THE JOURNAL, March 9, p. 705, which, however, we find to be misleading, if not unjust, and for several reasons.

With regard to digitalis preparations the editorial mainly refers to investigations carried out by Hale, published in Bulletin 74 of the Hygienic Laboratory, and it states that Hale concluded that "the proprietary preparations for which reliability and permanence were claimed in reality were not only unreliable, but also in some cases practically worthless"; further that "in fact, it almost looked as if the biologic assays of this class of preparations had been largely a matter of printer's ink."

The editorial speaks so generally of "proprietary preparations for which reliability is claimed" that it must lead one to assume that all of the drugs investigated by Hale were found to be unreliable. The author, however, also included digipuratum in his assays, and in the same bulletin (pp. 52 and 53) states that his "results indicate that the two samples (of digipuratum) are of the same strength, a result which accords with the manufacturers' claim that digipuratum is an assayed product." Furthermore, his own biologic tests show "that digipuratum is of the same strength whether purchased in the tablet or in the powdered form, and that it is of about the same activity as the strongest official digitalis preparation on the market."

The editorial then goes on to state that most manufacturers did not act on these criticisms but "in justice it must be said . . . that one firm took the reports seriously and proceeded to put its house in order." This firm is highly praised for its action of submitting its products to the Council on Pharmacy and Chemistry for approval, and the notice of acceptance appears in the same issue, March 9, 1912. The editor concludes by saying, "How long it will be before the manufacturers of other proprietary digitalis and ergot preparations secure similar endorsements is as yet uncertain."

In connection with this permit us to state the fact that digipuratum was submitted to the Council on Pharmacy and Chemistry as early as Aug. 12, 1909, and the notice of the acceptance of this preparation appeared in THE JOURNAL May 28, 1910, or long before the action of the firm above referred to.

KNOLL & CO.

[COMMENT.—The editorial discussed American pharmaceutical products, but on rereading it we see that it might be taken to apply to Knoll and Company's digipuratum. It was not so intended.—ED.]

Psychology in the Medical Course

To the Editor:—In THE JOURNAL for March 30 was published an interesting collection of papers bearing on the relation of psychology to medicine. It was urged by some of the writers that psychology should be included as one of the regular studies of the medical curriculum. In every advance of this sort it is of critical importance to find a "sheep" who will "jump first." It is then relatively easy to get the rest of the flock to follow. It may, therefore, be of interest to call attention to the fact that in the Yale Medical School for some years past a course in psychology has been part of the required work of the second-year students. The instruction is given by the department of psychology of Yale College, but is especially arranged for medical needs. In addition to this course, practically all of the students who have not already had elementary psychology during their academic course are required during the first year in the medical school to take this study in Yale College. The principal obstacle in the way of introducing these courses is lack of time because of the enormously (and, in my judgment, quite unnecessarily) extended course in anatomy which is still required by the orthodox medical curriculum.

I believe that elementary psychology ought to be included as one of the premedical requirements along with physics, chemistry and biology. In the medical course the functions of the sense organs should be taught from the psychic rather than the physical standpoint. It is of at least as much importance for the future physician to know something of the laws of thought as it is for him to understand the chemical composition of gastric juice. Nevertheless we should hesitate to add any subject to the already overcrowded medical curriculum which will further delay the entrance of our students on their professional work. We ought to bring pressure to bear on the academic colleges so as to get our students into the medical school by the time they are 20, at latest. If this were done, and if the time devoted to anatomy were reduced, it would be easy to include such instruction in psychology as is advocated by the writers above referred to.

YANDELL HENDERSON, New Haven, Conn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HEMORRHAGE AND BLOOD COAGULATION; USES OF CALCIUM, ATROPIN, NITROGLYCERIN AND DIGITALIS

To the Editor:—1. In THE JOURNAL (March 23, 1912, p. 859), I read the following: "It is known that the blood, properly to coagulate, needs calcium." In my freshman year I was taught that, but in my junior year, 1903, I was taught that calcium salts are not needed, the earlier experiments being in error in the method of precipitating the calcium salts. Precipitating calcium salts by another method allowed calcium-free blood to coagulate. Which view is right?

2. How should one administer digitalis to overcome the momentary seriousness when called to a bleeder?

3. Further in the article above referred to this appears: "A tablespoonful of lime-water given in milk." Bunge, in "Physiologische Chemie" (Ed. 3, 1894, p. 325), says that "cows' milk contains more calcium than does lime-water." If this is correct, why add the lime-water?

4. In an article on "bleeders" why is a vasodilator (nitroglycerin) for hemoptysis suggested without stating whether or not there are any contra-indications, and in the next paragraph why is it suggested that vasoconstrictors are needed in some cases?

5. Atropin is suggested as a vasoconstrictor. Cushny mentions only the arterioles of the abdomen as being constricted by atropin, while it acts as a dilator of the skin-vessels (Cushny's Pharmacology, Ed. 2, p. 284). I have used both atropin and calcium chlorid with success in bleeders, but am asking these questions to get more light on the subject.

G. E. HENSCHEN, M.D., Georgetown, Tex.

ANSWER.—1. We think that there has been some misapprehension by our correspondent in reference to the teaching with regard to the coagulation of blood. Coagulation of the blood, as at present understood, involves the action of a number of elements, including the salts of calcium. It was formerly supposed that the presence of calcium was necessary to the final formation of fibrin. Some experiments, however, seem to indicate that it is essential to the formation of thrombin from the prothrombin, but that, when the thrombin is once formed, it can act on fibrinogen to form fibrin, without the presence of calcium. It would appear, therefore, that the experiments to which our correspondent's teacher referred, indicated simply that the calcium might be absent at a certain stage of the process, that is, in the action of the thrombin on fibrinogen, but did not invalidate the assertion that calcium is a necessary element in the formation of thrombin and, therefore, absolutely indispensable for the coagulation of the blood.

2. Digitalis is of little, if any, value in overcoming the immediate serious condition in which a patient may be after hemorrhage. The physiologic action of digitalis requires about twelve hours. If an immediate cardiac tonic is advisable, strophanthin, given intravenously, or at least hypodermatically, is the best treatment. It is doubtful if, after a hemorrhage, a cardiac tonic is the best treatment. In a prolonged weakened circulatory condition in which the heart-muscle is weak and improvement in the heart tone is needed, digitalis is the best treatment. In other words, digitalis looks toward the future and is the best treatment of a chronic condition.

3. It is true that milk contains a larger percentage of calcium than does lime-water and, therefore, that adding lime-water to milk does not increase the proportionate calcium content. Empirically, however, the addition of lime-water is believed to possess some advantages. It may be that the calcium in the lime-water is more readily available to the system; or it may increase the availability of the calcium in the milk by causing the latter to coagulate in finer particles and making it more digestible. We find no record of experimental work to determine these points.

4. Hemoptysis was instanced only as one of several possible internal hemorrhages, and, whether a patient is a bleeder or not, when a hemorrhage is taking place at a point where it cannot be locally prevented or pressure locally applied, anything that lowers the blood-pressure is the immediate treatment, such as nitroglycerin. On the other hand, if a hemorrhage from the lungs, for instance, were due to valvular lesion and a dilated heart, the hemorrhage would be likely to recur unless the heart-muscle were improved, and digitalis would be the drug indicated.

5. Atropin may raise the blood-pressure by stimulating the heart and by contracting the arteries of the abdomen without a sufficient compensating dilatation of the peripheral blood-vessels. In this way it may fulfil the offices of a vasoconstrictor in raising the blood-pressure. It was, therefore, mentioned among the vasoconstrictors, but it must be admitted that its action is uncertain.

SERUM IN EPIDEMIC CEREBROSPINAL MENINGITIS

To the Editor:—Please refer me to articles that have appeared in THE JOURNAL within the last two or three years in regard to the treatment of epidemic cerebrospinal meningitis by serum. I am desirous of looking up the literature with reference to this matter before reporting an atypical case in which the patient was cured with Flexner's serum. ADELBERT C. MATTHEWS, M.D., Napa, Cal.

ANSWER.—We give below a list of some articles on this subject which have appeared originally or have been abstracted in THE JOURNAL.

Department of Therapeutics, THE JOURNAL, Sept. 2, 1911, p. 823.

Dunn, C. H.: Animal Experimentation in Relation to Epidemic Cerebrospinal Meningitis, THE JOURNAL, July 22, 1911, p. 259.

Bendict, R.: THE JOURNAL, Feb. 4, 1911, p. 346.

Flexner, S.: Present Status of Serum Treatment of Epidemic Cerebrospinal Meningitis, THE JOURNAL, Oct. 30, 1909, p. 1443.

Churchill, F. S.: Serum Treatment of Epidemic Meningitis, THE JOURNAL, July 24, 1908, p. 21; Sept. 11, 1909, p. 841.

Ladd, L. W.: Serum Treatment of Epidemic Cerebrospinal Meningitis, THE JOURNAL, Oct. 17, 1908, p. 1315.

Flexner, S., and Jobling, J. W.: An Analysis of 400 Cases of Epidemic Cerebrospinal Meningitis Treated with Antimeningitis Serum, THE JOURNAL, July 25, 1908, p. 268.

Dunn, C. H.: The Serum Treatment of Epidemic Cerebrospinal Meningitis, THE JOURNAL, July 4, 1908, p. 15.

Serum in Cerebrospinal Meningitis, THE JOURNAL, Queries and Minor Notes, Feb. 10, 1912, p. 430.

Jochmann, G.: Serotherapy of Epidemic Cerebrospinal Meningitis, *Deutsch. med. Wchnschr.*, Sept. 21, 1911; abstr. in THE JOURNAL, Oct. 28, 1911, p. 1497.

Brown, P. K.: Epidemic Meningitis in California and Its Treatment with Flexner's Antimeningitis Serum, *California Jour. Med.*, August, 1910; abstr. in THE JOURNAL, Aug. 27, 1910, p. 802.

White, S. M.: Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis with Flexner's Antimeningitis Serum, *Northwest. Lancet*, Aug. 1, 1910; abstr. in THE JOURNAL, Aug. 27, 1910, p. 809.

Hutinel, V.: Serotherapy and Anaphylaxis in Cerebrospinal Meningitis, *Presse Méd.*, July 2, 1910; abstr. in THE JOURNAL, Aug. 6, 1910, p. 538.

Churchill, F. S.: Serotherapy of Epidemic Cerebrospinal Meningitis, *Illinois Med. Jour.*, September, 1909; abstr. in THE JOURNAL, June 5, 1909, p. 1881.

PREPARATION OF PHENOLPHTHALEIN

To the Editor:—In discussing the importance of phenolphthalein (Feb. 24, 1912, p. 578), with reference to its preparation, aside from the proprietary preparations, you referred to New and Nonofficial Remedies, 1912, p. 180, but on referring to that page I did not get the information I wanted. I have used phenolphthalein for some time in chronic constipation and will be glad to know of a method of preparation by the local pharmacist, so that I may discontinue the use of the proprietary article.

C. A. HOWELL, Cheyenne, Okla.

ANSWER.—Phenolphthalein is not a proprietary article; it is manufactured and sold by a number of chemical houses. The method of preparation is described in the section of New and Nonofficial Remedies referred to, but it is not to be supposed that the retail pharmacist will undertake to prepare a chemical of this character, because it can be purchased from reliable chemical houses, in a state of chemical purity, more cheaply than he can prepare it. The powder, as it is purchased, is suitable for medicinal use without preparation. It needs only to be prescribed in powders, capsules, pills or tablets. As it is comparatively tasteless it may be given in powders. Thus: ℞

Phenolphthalein, 2 gm.
Divide in pulveres No. XXX.

Or, the powder may be put in capsules, or the pharmacist may be directed to make the corresponding number of pills.

PREDETERMINATION OF SEX

To the Editor:—In THE JOURNAL for March 30, 1912, p. 983, I see mention of an article on "Predetermination of Sex," by O. Schöner, in the *Zentralblatt für Gynäkologie*, February 24. Does this author believe that sex can be controlled, i. e., male or female produced at will, and does he offer anything new?

J. A. BURNETT, M.D., Marble City, Okla.

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ANSWER:—Schöner's views were briefly summarized in THE JOURNAL, Dec. 11, 1909, p. 2042. He has since written a book, and the article in the *Zentralblatt*, referred to above, is merely a reply to Ahlfeld's derogatory criticism of his book, in the same *Zentralblatt*, Dec. 16, 1911. His theory is based on the alternating functioning of the ovaries according to a two-in-three rhythm of the acxes and the assumption that the sex is determined before conception and that the functioning ovary is tender on palpation. He thinks one may compute sex by counting the menstruations between two conceptions.

CITRIC ACID IN HEADACHE

To the Editor:—My mother, who is 58 years old and weighs about 138 pounds, is generally in good health but has periodical attacks of intense headaches. They come on about every six weeks. The pain begins at the base of the brain, about 3 or 4 o'clock in the morning, and spreads gradually until the skull seems about to burst. At first the pain was allayed by 1 grain hypodermatic doses of codein. Of late, however, the attack has been aborted by drinking lemonade, eight to ten lemons in four or five hours. This also allays an intense bladder irritation. Can this be a hyperalkalinity of the blood? If so, what would be the treatment? Is this the opposite of a rheumatic diathesis? O. L. RHODES, M.D., Denver.

ANSWER.—Hyperalkalinity of the blood is practically unknown and the fact that lemonade relieved the condition would not warrant the assumption that the blood was excessively alkaline. The acid of lemonade, citric acid, is readily oxidized to carbon dioxid and water excreted by the lungs, so that it has only a temporary effect on the reaction of the blood and the urine. On the other hand, lemon juice contains a considerable quantity of the citric acid salts of the fixed alkalies, principally potassium. When these are oxidized in the system a carbonate of the alkaline metal is formed which has the effect of increasing the alkalinity of the blood and decreasing the acidity of the urine. One might therefore explain the good influence of the lemonade by supposing that it acted as an alkali rather than as an acid, and the relief of the bladder trouble would seem to confirm this opinion. Although it is somewhat speculative it might be suggested that the headache may be connected with an increased viscosity of the blood which it has been shown is reduced by the action of citric acid. For further analysis of the ramifications of this theory, see an article on the therapeutic use of citric acid by Dr. H. B. Hemenway in THE JOURNAL, April 6, 1912, page 992.

TINCTURE OF FERRIC CHLORID AND THE TEETH

To the Editor:—After reading the article in THE JOURNAL for March 16, 1912 (p. 805), I desire to submit a method of administering tincture of ferric chlorid which I have used for many years and which has always proved satisfactory, never producing any ill effects.

℞ Tinct. Fe_2Cl_6..... ℥j
Capsules (No. 0 or No. 00)..... xxiv
Medicine dropper.

Sig.: Eight drops (5 minims) to be taken in capsule after food as directed; follow with quarter glass of water or milk.

I direct the patient to open capsule and put eight drops in larger or inner portion and replace cap. These capsules may be sealed readily by filling the cap with water, emptying and replacing on the larger or inner portion. The U. S. P. tincture of ferric chlorid may be diluted with two parts absolute alcohol, and capsules so filled and sealed remain in perfect condition for from twelve to twenty-four hours. I have never found a patient who objected to this simple and efficacious method after the action on the teeth had been explained to him. The original query by "X Y Z" asked for a "diluent" which would render tincture of ferric chlorid harmless to the teeth and still retain its virtue. From the nature of the substance it is impossible for them to come in contact without a chemical reaction. The effect of a diluent with tincture of ferric chlorid to remove its corrosive action on the teeth is to deprive it of its virtue, as is the case with the organic preparation on the market. With the ordinary medicine-dropper 5 minims equals 8 drops. For my private use I take an ordinary medicine-dropper and file off gradually from the point until I get a bore of sufficient size so that 1 minim equals 1 drop, which is determined by measuring in a graduate. Incidentally this is an excellent method for administering terebene, creosote, etc.

H. A. SHARPE, Ph.C., M.D., Mount Vernon, Wis.

The Public Service

JOURNAL Announcements, Knocks and Boosts, Books Received and changes in the Public Service will be found in the advertising section, commencing on the second page following reading matter

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

SENATE COMMITTEE REPORTS FAVORABLY ON MODIFIED OWEN BILL

The Senate Committee on Public Health and National Quarantine has reported favorably on Senate Bill 1, known as the Owen bill, and this bill is now before the Senate as Calendar No. 561. Senator Owen made a report on Saturday, April 13, presenting a bill agreed on by the committee, the text of which appears below:

A BILL TO ESTABLISH AN INDEPENDENT PUBLIC HEALTH SERVICE, AND FOR OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there be at the seat of government an independent establishment known as the United States Public Health Service (which may be called the Health Service), and a Director of Health, who shall be the head thereof. The Director of Health shall be appointed by the President, by and with the advice and consent of the Senate, at a salary of six thousand dollars per annum and with tenure of office of six years, unless sooner removed for cause. And said director shall cause a seal to be made for said Health Service, of such device as the President approves, and judicial notice shall be taken of said seal.

SEC. 2. That there shall be in the Health Service, as assistants to the Director of Health, three commissioners of health, two of whom shall be skilled sanitarians and one a skilled statistician, appointed by the President, by, and with the advice and consent of the Senate, who shall serve at the pleasure of the President on the recommendation of the Director of Health. The head of the Public Health and Marine-Hospital Service, the head of the Bureau of Chemistry, charged with the investigation of the adulteration of foods, drugs, and liquors under the act approved June 30, 1906, and the head of the Division of Vital Statistics shall comprise the three commissioners of health above established with the same salary for each as now fixed by law, respectively. The commissioners of health shall perform such duties as are required by law and such as shall be prescribed by the Director of Health not in conflict with the provisions of this act. In the absence of the Director of Health, the commissioners, in the order above named, shall exercise the duties of the Director of Health as first, second, or third assistant director of health. There shall be also a chief clerk, a disbursing clerk, and such other employees as Congress may from time to time authorize. The Auditor for the State and Other Departments shall receive and examine all accounts of moneys paid in and of moneys expended on account of the Health Service, and shall certify the balance arising thereon to the Division of Bookkeeping and Warrants of the Treasury Department, and forthwith send a copy of each such certificate to the Director of Health.

SEC. 3. That it shall be the duty of the Health Service to collect and disseminate information relating to the public health and to enforce the observance of all regulations and laws of the United States relating to the public health: *Provided*, That this act shall not be construed as attempting to authorize the Health Service to exercise or attempt to exercise, without express invitation from the chief executive or other proper authority of the state, any function belonging exclusively to such state, or to enter any premises without the consent of the owner or occupant thereof; but the Director of Health, on request of the chief executive or other proper authority of any state, territory, the District of Columbia, or any insular possession, may detail for limited periods an officer or officers, employee or employees, from the Health Service to assist the health authorities of such state, territory, district, or insular possession in protecting the health of the people of such jurisdiction: *And provided further*, That the Health Service established by this act shall have no power to regulate the practice of medicine or the practice of healing, or to interfere with the right of a citizen to employ the practitioner of his choice, and all appointments within the Health Service, including the head of the service, shall be made without discrimination in favor of or against any school of medicine or of healing

SEC. 4. That to the Health Service are hereby transferred the following bureaus, divisions, and other branches of the Government, and all that pertains to them, and they and each of them shall remain under the supervision and direction of the Director of Health until otherwise authorized by law, namely:

(a) From the Department of the Treasury is transferred the Public Health and Marine-Hospital Service.

(b) From the Department of Agriculture is transferred that part of the Bureau of Chemistry charged with the investigation of the adulteration of foods, drugs, and liquors, and with the execution and enforcement of the act of Congress entitled "An act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes," approved June 30, 1906.

(c) From the Department of Commerce and Labor is transferred the Division of Vital Statistics, Bureau of the Census.

And the President is hereby authorized to transfer to the Health Service at any time either the whole or any part, as to him may seem best, of any bureau, division, or other branch of the Government engaged in work pertaining to the public health, except the Medical Department of the Army and the Bureau of Medicine and Surgery of the Navy.

And each and every function, authority, power, duty, and jurisdiction, of whatsoever character it may be, vested at the time of any transfer aforesaid in the head of the executive department from which said bureau, division, or other branch of the Government is transferred, shall, to the extent to which such function, authority, power, duty, or jurisdiction pertains to such bureau, division, or other branch of the Government, immediately on such transfer become vested and thereafter remain vested in the Director of Health.

All land, buildings, furniture, apparatus, equipment, and property of whatsoever description, and all official records and papers, in the custody of any executive department from which any bureau, division, or other branch of the Government is transferred as aforesaid and pertaining to the business of such transferred bureau, division, or other branch of the Government, shall at the time of such transfer, or as soon thereafter as practicable, and in so far as such action can be taken without hindering the work of the executive department from which such transfer is made, be given over into the custody of the Health Service. And all unexpended balances of appropriations available at the time of such transfer for the use of any such transferred bureau, division, or other branch of the Government, or which may become available thereafter, shall be and remain available, in similar manner and to the same extent as if no transfer had been made.

SEC. 5. That within the Health Service there shall be the following bureaus and divisions:

(a) Bureau of the Public Health and Marine-Hospital Service; (b) Bureau of Foods and Drugs; (c) Bureau of Vital Statistics; (d) Bureau of Child Conservation; (e) Division of Sanitary Engineering; (f) Division of Personnel and Accounts; (g) Division of Publications. And the Director of Health is hereby authorized to arrange and rearrange from time to time, with the approval of the President, the functions, duties, personnel, papers, records and property, and the work, resources, and equipment generally, coming into the jurisdiction and control of the Health Service by the operation of this act, so as most efficiently and economically to organize and maintain the several bureaus and divisions herein named and offices thereof as to said director seems proper; but in arranging and rearranging the personnel, the rank, pay, and allowances of the officers of the Public Health and Marine-Hospital Service and of other services commissioned at the time of the transfer of such service to the Health Service shall not, by reason of anything in this act contained, be diminished. And the Director of Health may call on the heads of executive departments for information in their possession whenever such information is needed for the efficient and economical working of the Health Service.

SEC. 6. That the President is hereby authorized to detail officers and employees from any of the several executive departments of the Government for duty under the Director of Health when so requested by said director, and to detail officers and employees in the service of the Health Service to any of the executive departments on request of the head of such department, provided such detail can be made without prejudice to the public service, to carry into effect the purpose and intent of this act; but officers and employees so detailed shall receive no additional compensation, but shall be paid such actual and necessary additional expenses as they incur in the discharge of their duties

SEC. 7. That the Director of Health may, in his discretion and with the approval of the President, appoint an advisory board of not more than seven members to confer with him on his request, from time to time as he deems necessary, concerning the work of the Health Service and the health of the people. The members of said board shall be selected because of their special knowledge of matters relating to the public health, and each shall hold office for a term of seven years or until his successor is appointed, except that the appointments first made, and appointments thereafter made to fill unexpired terms and terms of members who have held over beyond the periods of their original appointments, shall be made so that not more than one member shall retire during any one fiscal year. No member of any such advisory board shall receive any compensation for his services, but each shall be paid all actual expenses necessarily incurred in the discharge of his duties. And from and after the passage of this act the advisory board for the Hygienic Laboratory created by section five of an act entitled "An act to increase the efficiency and change the name of the United States Marine-Hospital Service," approved July 1, 1902, be, and the same hereby is, abolished.

SEC. 8. That from and after the passage of this act annual and other conferences of state and territorial boards of health, quarantine authorities, and state health officers, provided for by section seven of an act entitled "An act to increase the efficiency and change the name of the United States Marine-Hospital Service," approved July 1, 1902, be, and the same are hereby, placed under the jurisdiction of the Public Health Service.

SEC. 9. That, except as expressly provided in this act, nothing herein contained shall be construed as limiting the existing quarantine laws or abrogating any function, right, or duty imposed by law on any existing bureau, division, or other branch of the Government; but such bureaus, divisions, and other branches of the Government as are by this act or by authority thereof transferred to the Health Service shall continue, under direction of the Director of Health, to have such functions, duties, and rights as they have at the time of such transfer; and in the case of such bureaus, divisions, and other agencies of the Government as are transferred in part only, the part not transferred shall continue to have and to exercise all such functions, duties, and rights, except as specifically relate to the part transferred to the Health Service, in the same manner and to the same extent as if no such transfer had been made.

SEC. 10. That the Director of Health shall annually submit to Congress a report in writing showing the operations of the Health Service during the last preceding fiscal year, which report shall give an account of all moneys received and all moneys disbursed on account of such operations: *Provided*, That there may be employed in the United States Public Health Service such help as may be provided from time to time by Congress. He shall make such other reports from time to time as may be required by the President, or by either House of Congress, and such as are in his judgment necessary or expedient.

SEC. 11. That all acts and parts of acts contrary to the provisions of this act or inconsistent therewith be, and the same are hereby, repealed.

SEC. 12. That this act shall take effect on and after July 1, 1912.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

General Subject for the Month, Diseases of the Liver and Biliary Tract

Ninth Month—First Weekly Meeting

ANATOMY OF LIVER AND GALL BLADDER

LIVER: Situation, surface markings, important relations. Shape, volume, dimensions. Weight, color, consistence. Surfaces, lobes, fissures, capsule of Glisson, ligaments. Blood-supply; trace portal vein to inferior vena cava; trace hepatic artery. Trace hepatic duct. Lymphatic vessels and glands. Nerve supply.

Microscopic Anatomy: Lobule, cells, blood-vessels, ducts. Trace ducts from origin to common duct.

GALL BLADDER: Shape, size, situation. Fundus, body and neck. Important relations. Blood-supply, nerves and lymphatics. Microscopic structure; three coats.

PHYSIOLOGY OF LIVER AND GALL BLADDER

1. Secretion of bile. Increased flow; causes, hemolytic agents. Effect of bile, of secretion, section of nerves. Function of gall bladder. Ejection of bile into duodenum. Bile as an excretion.
2. Formation of glycogen. Quantity in liver, causes of variation in quantity. Effect on amount of glycogen, (a) of carbohydrates, monosaccharids and disaccharids, (b) of proteids, (c) of fats. Function of glycogen, changes occurring in glycogen, effects of exercise and starvation on glycogen.
3. Formation of urea. Sources of urea, probable changes in proteids.
4. Detoxification of poisons.

THE CHEMISTRY OF BILE

Color, reaction, specific gravity. Bile pigments; origin, color, of each, reabsorption, Gmelin's reaction. Bile acids, sodium salt of each. Reabsorption, probable effect. Effect on cholesterin and fats. Cholesterin, probable source. Lecithin. Bile as an antiseptic.

REFERENCE BOOKS FOR THE NINTH MONTH

Text-Books on Practice of Medicine.
Rolleston: Diseases of Liver and Gall-Bladder.
Allbutt's System of Medicine.
Osler's Modern Medicine.
Nothnagel's Practice: Liver and Pancreas.
White: Affections of the Liver.
Kehr: Diagnosis of Gall-Stone Disease.
Robson: Diseases of the Gall-Bladder.

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Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., June 4-7.

American Academy of Medicine, Atlantic City, May 30-June 2.
American Dermatological Association, St. Louis, May 23-25.
American Gynecological Society, Baltimore, May 28-30.
American Laryngological Association, Atlantic City, May 9-11.
American Medico-Psychological Association, Atlantic City, May 28-31.
American Neurological Association, Boston, May 30-June 1
American Orthopedic Association, Atlantic City, May 30-June 1.
American Pediatric Society, Hot Springs, Va., May 29-31.
American Surgical Association, Montreal, May 29-31.
American Therapeutic Society, Montreal, May 31-June 1.
Arizona Medical Association, Bisbee, May 7.
Arkansas Medical Society, Hot Springs, May 13-16.
Association of American Physicians, Atlantic City, May 7-8.
Connecticut State Medical Society, New Haven, May 22.
Florida Medical Association, Tampa, May 8-10.
Illinois State Medical Society, Springfield, May 21-23.
Iowa State Medical Society, Burlington, May 8-10.
Kansas Medical Society, Hutchinson, May 1-2.
Louisiana State Medical Society, New Orleans, April 23-25.
Maryland Medical and Chirurgical Faculty, Baltimore, April 23-25.
Missouri State Medical Association, Sedalia, May 21-23.
Montana State Medical Association, Helena, May 8.
Nat. Assn. for Study and Prev. Tuberculosis, Washington, May 30-31.
Nebraska State Medical Association, Lincoln, May 7-9.
New Hampshire Medical Society, Concord, May 8-9.
North Dakota State Medical Association, Valley City, May 8-9.
Ohio State Medical Association, Dayton, May 7-9.
Oklahoma State Medical Association, Shawnee, May 7-9.
South Dakota State Medical Association, Mitchell, May 22-24.
Texas State Medical Association, Waco, May 7-9.
Wisconsin State Medical Society, Wausau, May 22-24.

TENNESSEE STATE MEDICAL ASSOCIATION

Seventy-Ninth Annual Meeting, held at Chattanooga, April 9-11, 1912

The President, DR. C. J. BROYLES, Johnson City, in the Chair.

The New Officers

The following officers were elected for the ensuing year: president, Dr. O. Dulaney, Dyersburg; vice-presidents, from West Tennessee, Dr. George R. Livermore, Memphis, from East Tennessee, Dr. W. J. Matthews, Johnson City, from Middle Tennessee, Dr. Zeb Shipley, Cookville; treasurer, Dr. W. C. Bilbro, Murfreesboro; secretary, Dr. Perry Bromberg, Nashville; delegates to the American Medical Association, Drs. A. B. Cooke, Nashville; S. R. Miller, Knoxville; alternates, Drs. Scott Farmers, Cookeville, and George R West, Chattanooga.

Nashville was selected as the place for the next annual meeting; April 8-10, 1913.

The Management of Syphilis

DR. W. F. GLENN, Nashville: I strongly urge against the routine of prescribing mercury and iodid of potassium in the same dose to every patient, and continuing it without intermission over a period of two or three years. I would earnestly advise that you treat each patient as a separate and distinct case, adapting your method, your dose and your remedy to each individual case. I should advise you not to treat syphilis, but to treat a patient suffering from syphilis. When a person applies for treatment, I should insist on the observance of the following hygienic rules: 1. The patient should abstain strictly from all forms of hog meat. 2. He should abstain from the use of alcoholic stimulants. 3. It is best not to use tobacco. 4. The body should be kept clean by sufficient bathing. 5. The condition of the general system must be carefully watched and medicated accordingly. 6. The teeth should be carefully attended to. 7. Be moderate in all things.

With reference to salvarsan, it is not yet decided and will not be for years to come whether six or a dozen doses will effect a permanent cure of syphilis. Yet in many cases brilliant results have been obtained by its use, but the same thing has been obtained with mercury and iodin. So I would reiterate what I said a year ago, that I regard salvarsan as a great addition to the therapeutics of syphilis, but I do not think it can displace mercury.

DISCUSSION

DR. WILLIAM ST. JOHN, Bristol: In mercury we have a remedy that has given excellent service, while there have been several sad deaths from the use of salvarsan. The great trouble about syphilis is we are not able to make a diagnosis sufficiently early to prevent the damage due to the poison. Last July a married man developed a classical case of jacksonian epilepsy. He had no history of syphilis. I had an *x*-ray picture taken of his brain, which showed nothing. He was having from ten to twenty distinct attacks of this form of epilepsy a day. The Wassermann test made of his blood showed positive spirochetic infection. Under the use of mercurial inunctions, in less than ten days the disease passed away.

DR. E. T. NEWELL, Chattanooga: At the Nashville meeting last year I reported fifteen cases in which I had used salvarsan intravenously. Since that time I have used it in a series of 155 cases intravenously, and of that number I have not had to give it to more than twenty-five cases a second or third time, and the results achieved in those cases were just as good and better than the clinical results from the use of mercury.

DR. JERE L. CROOK, Jackson: In salvarsan we have a drug which, when properly administered intravenously, will clear up the symptoms in the most marvelous manner and in the briefest possible time, with the least discomfort to the patient, and the patient leaves the hospital in two or three days, walks the street, does not have to take drugs all the time, and feels that he is a new man again.

DR. EDWIN B. ANDERSON, Chattanooga: I have given salvarsan seventy-five times in my own practice and for other men. To every case of primary syphilis I give a second dose. In several cases I have given salvarsan three times. In the case of a woman I gave it a fourth time. It is a great remedy. I believe in it strongly, but I keep up the use of mercury just the same.

DR. L. WEBSTER FOX, Philadelphia: I wish to emphasize the relationship which the ophthalmic surgeon bears to the general surgeon in these cases. As is well known, syphilis vents itself upon the intraocular structures, and we have in consequence serious results. We consider salvarsan our sovereign remedy to get rid of syphilitic chorioiditis, etc., excepting optic neuritis. With us in Philadelphia nearly every case for salvarsan is examined by an ophthalmologist before the injection is made by the general practitioner, because we have found that where there is a persistent anemia, where practically the nerves look white, the circulation of the eye is not what it should be; therefore, a full dose of salvarsan is not given, and Dr. Daland and others are now giving one-third of the dose in those cases at our suggestion.

DR. J. W. BRANDAU, Clarksville: The Wassermann reaction is still positive in cases in which the salvarsan has been adminis-

tered. This is explained by the fact that we have isolated spirochetes that have not been reached by the salvarsan on account of having been walled off by the inflammatory tissues impervious to the circulation, and consequently salvarsan has not reached these foci. In those cases mercury comes in well as an interval treatment and should be used.

DR. PERRY BROMBERG, Nashville: I have had considerable experience with the use of salvarsan administered intravenously and intramuscularly. According to the latest reports, in a large number of cases in which the drug has been administered intravenously, a positive Wassermann reaction may be expected to recur within three months; that in 6 per cent. of a series of thirty-two cases in which the intravenous method was adopted nephritis with casts, hyaline, granular and epithelial, were found in the urine and usually persisted. This was not so in another series of thirty-two cases in which the intramuscular method was used.

(To be continued)

CHICAGO MEDICAL SOCIETY

Regular Meeting, held March 20, 1912

The President, DR. J. M. PATTON, in the Chair

Studies in Tuberculosis

DR. GERALD B. WEBB, Colorado Springs, Colo.: In spite of improved hygienic conditions, every individual is exposed at some time to virulent tubercle bacilli. Hygiene alone, without vaccination, has always failed to stop small-pox, and the same must be true of tuberculosis. The skin tuberculin test has shown that in many communities almost every child by the age of puberty has become infected. The present interpretation of this infection must be that it is Nature's method of vaccination. The child that survives is placed in a hypersusceptible condition in regard to the tubercle bacillus. The organism possesses power of defense against small numbers of bacilli, but against large numbers it is more helpless than the non-infected. The condition is one similar to anaphylaxis.

The question arises whether, if we can control numbers, virulence and point of attack, before Nature infects it, we might possess a form of vaccination which would protect us. I have been attempting to produce immunity in calves by the inoculation of small numbers of virulent bovine tubercle bacilli and gradually increasing the numbers in subsequent doses. The calves were tested later and all gave definite reactions except one. It is impossible to say at which dose infection took place, but the result indicates that more careful dosage must be employed. I inoculated subcutaneously three full-grown guinea-pigs with 35, 75 and 125 virulent human tubercle bacilli respectively. The largest number produced the most rapid infection and in this pig bacilli were obtained from inguinal glands after three weeks. The animal was killed and showed extensive visceral lesion. In the animal receiving 35 gm. the disease after six weeks was limited to the inguinal glands. The lesions in the remaining pig were intermediate in degree. Tuberculosis is a disease in which the virulence of the bacteria is not so much to be reckoned with as the numbers received.

It occurred to me that by inoculating animals with increasing numbers of virulent bacteria, beginning with one, we might be able to produce immunity. I first worked with mice and anthrax bacilli and by inoculating first one bacillus and gradually increasing the number, I was able to give doses which inoculated all at one time would mean certain death. Next I inoculated guinea-pigs with virulent human tubercle bacilli and with the same result as in the case of mice and anthrax. I carried the work a step farther by inoculating monkeys with virulent human tubercle bacilli. They were first tested with tuberculin and shown to be uninfected. The inoculations were continued at weekly intervals over a year, and up to date the animals are perfectly healthy. Six monkeys were killed and a thorough search failed to reveal any trace of tuberculous disease. These monkeys received enough virulent tubercle bacilli to kill nearly 20,000 guinea-pigs, and yet the monkeys weighed only as much as three full-grown guinea-pigs.

At the request of the father, I inoculated two children, aged 9 months and 3 years, respectively, with virulent tubercle bacilli, after having first tested them and found a negative reaction. The inoculations were started with one bacillus and increased at weekly intervals until six hundred had been injected. After twelve months the children still gave a negative tuberculin reaction. It is quite probable that immunity may be produced in this way, but it would seem necessary to begin the vaccination immediately after birth.

All the inoculations were made subcutaneously. I found that when I reached from 3,000 to 5,000 bacilli a lump occurred at the inoculation point which would take from one to three weeks to disappear. I believe that the reason for this is that the organism has become saturated and that therefore the bacilli remain localized because on examining these lumps we found that they contain disintegrating organisms.

The lymphocytes are the cells which are directly responsible for the disappearance of the bacilli. In my work on cockroaches and grasshoppers I found that after injection of tubercle bacilli, lymphocytes containing the germs in all stages of digestion could be found in the circulating blood. This digestion went on for several days. The lymphocytes contain or furnish lipase which destroys the waxy parts of the tubercle bacilli. Therefore, there exists a definite relationship between the cure of this disease and the lymphocytes. The differential blood-picture is also of some value in indicating the stage of the disease and the prognosis. The greater the number of lymphocytes, the better the prognosis. Progression of the disease is accompanied by a low leukocytosis. I also investigated the claims of Arneth and my findings corroborated his statements.

A series of observations on the effect of high altitudes on blood showed very definitely that there is a rise in hemoglobin, as high as 120 per cent. at the top of Pike's Peak, and an increase in red blood-cells, as high as 8,000,000, with a lymphocytosis of 70 per cent. This increase has been explained as being due to hyperplasia of the bone-marrow. Believing that artificial hyperemia of accessible bones might be equally effective, I applied a rubber bandage to the legs as high up on the thigh as possible, with sufficient pressure to interfere with the return venous flow, but not enough to obstruct the arterial. The results confirmed my deductions. A marked lymphocytosis, an increase of 20 per cent. above the normal, was produced. The patients applied the bandage in the form of an elastic, one inch wide, day and night, without discomfort.

A similar result was produced by hot mustard footbaths. I found that continued arm hyperemia of two weeks' duration is required to prove the greatest results. After this time the patient's sputum decreases, especially the thick yellow portion, and in some patients the temperature has dropped. In some experiments on rabbits the red cells were also increased by marrow hyperemia. The lymphocytes appeared in the sputum in large numbers, almost entirely replacing the polymorphonuclear cells. They contained fragmented tubercle bacilli. It was shown that the large lymphocyte has decided phagocytic powers. The polymorphonuclear cells do not seem to have this power. I have modified the skin test somewhat in technic. I found that old tuberculin would dry on hypodermic needle-points. These points are moistened with a drop of pure water placed on the sterilized skin and then plunged through the skin and given a twist as they are withdrawn. I have received positive tests when the von Pirquet test was negative. The reaction is characterized by a very definite lump, probably an actual tubercle. In two instances a slight temperature reaction followed. The best location is over the radial muscles, as here it is very rare to puncture a vein.

Displaced and Movable Kidney

DR. WILLIAM CUTHBERTSON: This condition is not recognized often enough, especially in the case of women, who suffer from this disturbance far oftener than men. The kidney may be displaced without being floating, and it may or may not cause symptoms; in many cases, however, the symp-

toms may be very distressing and not referable to the kidney. In such cases stitching the kidney back in place often gives complete and permanent relief. There is no question that this operation should be resorted to more frequently, and the fact that some kidneys prolapse again is not an argument against the operation. Sometimes one kidney is stitched back in place, and then the symptoms recur, but are caused by a prolapse of the other kidney. I have had such cases, in which a second operation has given the desired relief.

DISCUSSION

DR. J. L. MILLER: I believe that this operation is often performed when it is not necessary, because often symptoms which are referred to a movable kidney are caused by some other condition. When this is treated the symptoms disappear. These cases offer great difficulties in diagnosis, especially when they are referred to the right side. The result in some cases that is claimed as a credit for the operation is in reality to be ascribed to suggestion. These patients remain well for a time and then the symptoms recur. The suggestion has worn itself out and the patient returns again seeking another period of relief. The mere stitching up of the kidney has not relieved the patient of the underlying pathologic process from which she is really suffering, and which has escaped detection. There can be no doubt that better diagnosis and treatment is demanded in these cases.

DR. A. GOLDSPOHN: Not every movable kidney should be operated on to relieve the symptoms. Often even a floating kidney does not cause symptoms. Only such kidneys should be replaced as cause definite symptoms referable to the kidney. I have demonstrated in a number of cases that suggestion does not play any rôle in the production of a cure, or in giving these patients relief. In cases in which I did not tell the patient what I suspected to be causing the trouble, or what I was looking for, or what I was trying to do, replacing the abdominal viscera with the patient in the Trendelenburg position and then applying a tight abdominal bandage, has often given relief from distressing symptoms. It is remarkable how long such patients wear the bandage because they fear that when it is removed their symptoms will return.

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Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, May 14. Sec., Dr. F. T. Murphy, Brinkley.

FLORIDA: Regular, Jacksonville, May 7-8. Sec., Dr. J. D. Fernandez; Eclectic, Jacksonville, May 6-8. Sec., Dr. Hiram J. Hampton, Tampa.

GEORGIA: Regular, Atlanta, May 1-4. Sec., Dr. C. T. Nolan, Marietta; Homeopathic, Atlanta, May 8. Sec., Dr. R. E. Hinman, 106½ Whitehall Street, Atlanta.

ILLINOIS: Coliseum Annex, Chicago, April 30. Sec., Dr. James A. Egan, Springfield.

LOUISIANA: Regular, Tulane University, New Orleans, May 30 to June 1. Sec., Dr. A. B. Brown, 108 Baronne Street; Homeopathic, New Orleans, May 6. Sec., Dr. Edward Harper, 702 Maccheca Bldg.

MASSACHUSETTS: State House, Boston, May 14-16. Sec., Dr. Edwin B. Harvey, State House.

MISSISSIPPI: State Capitol, Jackson, May 14. Sec., Dr. W. W. Smithson.

NEBRASKA: Senate Chamber, State House, Lincoln, May 22-23. Sec., Dr. C. P. Fall, Beatrice.

NEVADA: Carson City, May 6. Sec., Dr. S. L. Lee.

NEW YORK: May 14-17. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

TENNESSEE: Memphis, Nashville and Knoxville, May 1-2. Sec., C. A. Abernathy, Pulaski.

WISCONSIN: Milwaukee, May 28-30. Sec., Dr. J. M. Beffel, 3200 Clybourn Street.

Oregon January Report

Dr. E. B. McDaniel, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, Jan. 2-4, 1912. The number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 82 of whom 51 passed, including 5 nongraduates and 2 osteopaths, and 31 failed, including 12 nongraduates and 5 osteopaths. The following colleges were represented:

PASSED			
College	Year Grad.	Total No. Examined.	
College of Phys. and Surgs., San Francisco	(1910)	1	
Gross Medical College, Denver	(1892)	1	
Northwestern University Medical School	(1898)	1	
Rush Medical College (1877) (1884) (1905) (1909) (1910, 3) (1911, 4)		11	
College of Phys. and Surgs., Chicago	(1902) (1908, 3)	4	
Chicago College of Medicine and Surgery	(1907)	1	
Indiana University	(1911)	1	
Central College of Physicians and Surgeons	(1890)	1	
University of Iowa, College of Medicine	(1910)	1	
University of Louisville	(1907)	1	
University of Maryland	(1901)	1	
Harvard Medical School	(1908)	2	
Detroit College of Medicine	(1890)	1	
University of Missouri	(1875)	1	
University Medical College, Kansas City	(1907)	1	
Washington University, St. Louis	(1911)	1	
Marion-Sims College of Medicine	(1899)	1	
Columbia University, College of Phys. and Surgs.	(1882)	1	
Cleveland Homeopathic Medical College	(1885)	1	
Pulte Medical College	(1894)	1	
Medical College of Ohio	(1901)	1	
Starling-Ohio Medical College	(1911)	1	
University of Oregon	(1911)	1	
Jefferson Medical College	(1906) (1910)	2	
University of Pennsylvania	(1900)	1	
University of Pittsburgh	(1911)	1	
Queen's University, Kingston, Ontario	(1909)	1	
Trinity Medical College, Ontario	(1902)	1	
University of Athens, Greece	(1881)	1	

FAILED		
College	Year Grad.	Per Cent.
College of Physicians and Surgeons, San Francisco	(1910)	70.3
Chicago College of Medicine and Surgery	(1904)	36.2
College of Physicians and Surgeons, Chicago	(1909)	68.0
Medical College of Indiana	(1879)	45.1
Hospital College of Medicine, Louisville	(1907)	69.1
Barnes Medical College	(1904)	64.3
Ohio Medical University	(1906)	71.8
Eclectic Medical College, Cincinnati	(1909)	71.0
University of Oregon	(1911)	68.8
Willamette University	(1907) 71.3; (1908)	73.4
University of Oklahoma	(1911)	74.1
University of Naples, Italy	(1897)	63.2
University of Virginia	(1910)	72
Non-graduates—55.2, 61.4, 62.3, 63.2, 64.2, 68.7, 70.2, 70.8, 72.7, 72.9, 74.1, 74.4.		

Connecticut March Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written and practical examination held at New Haven, March 12-13, 1912. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 20 of whom 12 passed and 8 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Yale University	(1911) 75, 78.8, 85.4	
University of Maryland	(1910)	76.1
College of Physicians and Surgeons, Baltimore	(1911)	77.5
Harvard University	(1910)	86.2
University of Michigan, Dept. of Med. and Surg.	(1903)	77.3
Columbia University, Coll. of P. and S., New York	(1909)	88.7
Medico-Chirurgical College of Philadelphia	(1901)	76.9
University of Pennsylvania	(1909)	76.5
Temple University, Philadelphia	(1909)	76.8
McGill University	(1886)	83.2

FAILED		
College	Year Grad.	Per Cent.
Yale University	(1909)	71.9
Rush Medical College	(1905)	71.7
University of Maryland	(1908)	63.9
Baltimore Medical College	(1909)	72.6
College of Physicians and Surgeons, Baltimore	(1911)	71.9
Long Island College Hospital	(1899)	61.8
University of North Carolina	(1910)	73.7
Laval University, Quebec	(1902)	49.1

Book Notices

ANATOMIE TOPOGRAPHIQUE ET CHIRURGIE DU THYMUS. Par M. le Dr. Eugène Olivier, Aide d'Anatomie à la Faculté de Médecine. Paper. Pp. 152. Paris: G. Steinheil, 2 Rue Casimir-Delavigne, 1911.

This thesis will be of interest to both the pediatrician and the surgeon. Most of the cases of pathologic thymus come under the care of the pediatrician first, but the author considers that these cases are all surgical at the present time.

The work is divided into two parts, the first purely anatomic, in which the author gives his personal researches on the topography of the thymus, while in the second the surgical side of the subject is taken up in all its details. The author describes twelve cases of surgery of the thymus which he has had an opportunity to study personally and twenty-seven other cases which he has been able to collect from the literature. The histories of these cases are all given in full. As a result of his study the author concludes that the proper treatment of hypertrophy of the thymus is thymectomy and that this should be subtotal and subcapsular. He thinks subtotal, subcapsular thymectomy a simple operation requiring only about ten minutes for its performance when done through the inferior cervical region in the manner he describes. He also thinks the operation should have no mortality provided, (1) that the case is not septic from the beginning; (2) that it is not necessary to do tracheotomy either before or after the operation, and (3) that drainage is not used. In other words, he says that patients die from sepsis only.

In the thirty-nine cases reported, twenty-four patients recovered and fifteen died. Of the deaths, five were due to infection following tracheotomy with drainage; four were errors in diagnosis (tracheobronchial adenopathy), and three patients were in a desperate condition before the thymectomy. One patient died of bronchopneumonia eighteen days after the operation, one of infantile diarrhea one month after operation and one from an unknown cause.

This is an excellent record for a comparatively new operation in a new field of work.

HEALTH FOR YOUNG AND OLD. Its Principles and Practice. By A. T. Schofield, M.D., M.R.C.S., etc. Author of "Hygiene for Schools." Cloth. Price, $1.50. Pp. 300. New York: G. P. Putnam's Sons, 1911.

HOW TO BE HEALTHY. By J. Halpenny, M.A., M.D., Surgeon to the Winnipeg General Hospital, and Lillian B. Ireland, Manitoba Normal School. Cloth. Price, 50 cents. Pp. 242, with illustrations. Toronto: Educational Book Co., (1911).

HERSELF. Talks with Women Concerning Themselves. By E B. Lowry, M.D., Author of Confidences, etc. Cloth. Price, $1. Pp. 221. Chicago: Forbes & Co., 1911.

A MOTHER'S GUIDE. A Manual for the Guidance of Mothers and Nurses. By Francis Tweddell, M.D., Alumnus, Bellevue Hospital, New York. Cloth. Price, $1. Pp. 182 New York: James T. Dougherty, 1911.

WOMANHOOD AND ITS DEVELOPMENT. A Treatise on Adolescence Designed for the Young Woman, Embracing the Fundamental Principles of Biology, Physiology, Hygiene and Maternity. By Luella Z. Rummel, Ph.B., M.D. Cloth. Price, $1.50. Pp. 221. Kansas City, Mo.: Burton Publishing Company, 1912.

These five books are all intended for the general public, and their publication is evidence of the public demand for appropriate instruction on health matters.

"Health for Young and Old," according to its title page, is an "unconventional manual of principles and practice." While written for the English public, it is sufficiently broad to be of interest to the general reader in this country. Without attempting to give any instruction on the subject of sexual hygiene, on which so much is being written today, the tone of the entire book is toward self-restraint, good living and the increase of general knowledge on all conditions affecting bodily health.

Halpenny and Ireland's book, "How to Be Healthy," is a Canadian publication intended for school children. It is well printed and illustrated and, while necessarily rudimentary, is well adapted to its purpose.

"Herself," according to the author, was written to fill a want expressed in an answer to a correspondent in THE JOURNAL some years ago. In reply to the correspondent, we stated that there was no satisfactory book on the market for physicians to place in the hands of their young women patients. While it would probably be impossible to produce a book on such a delicate and difficult subject which would not be open to criticism by some one, yet this book must be regarded as a valuable contribution to the solution of the problem of sexual hygiene and the manner in which instruction on this subject shall be given to our girls and young women. Although showing some of the faults of the old conventional attitude on these questions, this book can be safely recommended to physicians for use in appropriate cases.

"A Mother's Guide" is a little book intended to give simple, but complete, directions to young mothers regarding the care of infants, nursing, artificial feeding, common disorders, the digestion, the general characteristics, the more common diseases, etc. The book is of a convenient size and is well indexed.

INFECTIONS OF THE HAND. A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand and Forearm. By Allen B. Kanavel, M.D., Assistant Professor of Surgery, Northwestern Medical School, Chicago. Cloth. Price, $3.75. Pp. 447, with 133 illustrations. Philadelphia: Lea & Febiger, 1912.

To undertake the task of preparing a book of about 450 pages dealing only with infections of the hand would on first thought appear to verge on the impossible, but an inspection of this book is convincing that it can be done. Use is made of large type, the lines are well leaded out and many illustrations help to convert a modest monograph into a text-book. Of course, that is not the fault of the author. While it is well to know much about infections of the hand, it is doubtful that the subject is of sufficient importance to require such extensive treatment or such a large book. It rather impresses one as being an elaborate prize thesis. The author has not contented himself with a simple statement of clinical facts, but he introduces reports of experiments and the results, in detail, of observations made in the dissection room, each valuable in its place, but hardly in place here. The first eighty pages are devoted to the discussion of clinical conditions which cannot fail to be of interest, but on which the author presents nothing new. Then follow eighty pages of anatomy, 130 on tendon sheath infections and fascial space abscesses, sixty on lymphatic infections, seventeen on allied infections, such as anthrax, erysipelas, etc., and sixty pages on complications. In order to present the subject in book form the author has called on many sources to get together enough material. One cannot, however, fail to commend the anatomic work done by him in this connection. Much of the text was published some time ago in a current medical periodical.

A HANDBOOK OF PRACTICAL TREATMENT. By Many Writers. Edited by John H. Musser, M.D., LL.D., Professor of Clinical Medicine in the University of Pennsylvania, and A. O. J. Kelly, A.M., M.D. Volume III. Cloth. Price, $6 net. Pp. 1095, with illustrations. Philadelphia: W. B. Saunders Company, 1912.

A careful examination of the third volume of this work serves to sustain the favorable opinion expressed in regard to the preceding volumes. The present volume covers constitutional diseases, the respiratory, digestive, nervous and muscular systems and mental diseases. The surgical treatment of the various regions involved is also discussed. Thus we have articles on the surgery of the infectious diseases of the lungs and pleura, the surgical treatment of visceroptosis, surgical treatment of diseases of the spinal cord, etc.

In general the treatment is excellent. There are some indications of insufficient editorial control. Thus it is stated (p. 126): "The pollantin which was imported into this country previous to the present year was made from grasses and therefore should theoretically be of no value when used to prevent or control hay-fever produced by the ragweed or goldenrod." This statement must refer to 1905 or 1906 and not to 1910, since pollantin, fall, made from ragweed toxin has been described in New and Nonofficial Remedies since 1906.

On the whole, however, this volume compares favorably with the previous one and completes what must be regarded as a worthy presentation of modern therapeutics.

MUNICIPAL ADVANCE: Extracts from the Papers on Various Municipal Services, read at the First International Municipal Congress and Exposition, Chicago, September, 1911. Paper. Chicago Association of Commerce, 22 West Jackson Boulevard.

This pamphlet contains abstracts of papers by experts in every department of municipal activity and reflects the progress that has been made in the various branches of municipal government, together with suggestions for improvements along these lines. Among the subjects covered are public utilities, charters, accountings, city planting, control of milk-supplies, parks and play-grounds, contagion and school inspection, pure water, sewage and garbage disposal, the work and cost of health departments, etc. As stated by the chairman, munic-

ipal advancement forms one of the most important phases of latter-day progress, and such conferences, emphasizing particularly the health and public welfare side of municipal governments, will no doubt become a feature of future municipal governmental and sociologic work.

LEHRBUCH DER THERAPIE INNERER KRANKHEITEN. Herausgegeben von Dr. Paul Krause, O.ö. Professor und Direktor der Medizinischen Universitäts-Poliklinik in Bonn, und Dr. Carl Garrè, O.ö. Professor und Direktor der Chirurgischen Universitäts-Klinik in Bonn. Vol. 2. Spezielle Therapie Innerer Krankheiten. Paper. Price, 10.50 marks. Pp. 712, with 10 Illustrations. Jena: Gustav Fischer, 1911.

The second volume of this text-book is devoted to the special therapy of internal diseases, which are treated by a number of authors including, besides the editors, such well-known names as von Noorden, Winternitz, Lommel, Lüthje, Jochmann, Matthes, Magnus, etc. The work is at the same time practical and thorough and, to the reader of German, will form a very desirable supplement to his English text-books.

A MANUAL OF THE PRACTICE OF MEDICINE. Prepared Especially for Students. By A. A. Stevens, A.M., M.D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania. Ninth Edition. Leather. Pp. 553. Philadelphia: W. B. Saunders Co., 1911.

This manual has been subjected to a thorough revision involving the rewriting of a number of articles and the addition of several new ones. The information given is very condensed and elementary, but the book supplies a want felt by many students and by the busy practitioner at times.

DIE GONORRHOE DES MANNES. Ihre Pathologie und Therapie. Ein Leitfaden für Aerzte und Studirende. Von Dr. Wilhelm Karo. Paper. Price, 2.80 marks. Pp. 100. Berlin: Julius Springer, 1911.

This is an excellent little book on gonorrhea for students and for the general practitioner. The author gives in brief recognized methods of diagnosis and treatment. One point especially good is his association of pathology with symptoms and treatment. The book is somewhat brief.

Medicolegal

Construction of Medical Practice Act—Chiropractics Not "Other Agency"

(State vs. Gallagher (Ark.), 143 S. W. R., 98)

The Supreme Court of Arkansas holds that "Dr. Gallagher" was not charged with the commission of a public offense by an indictment which charged that he "did unlawfully and repeatedly prescribe and direct for the use of Mrs. Randolph Gibson an agency, commonly known as 'chiropractics,' for the treatment, cure and relief of a bodily disease of said Mrs. Randolph Gibson; the said Dr. Gallagher not then and there having first procured a certificate authorizing him to practice medicine, as provided by the Revised Statutes of the State of Arkansas."

The portion of the Arkansas statute directly involved provides that "Any person shall be regarded as practicing medicine, in any of its departments, within the meaning of this act, who shall append 'M.D.' or 'M.B.' to his name; or repeatedly prescribe or direct, for the use of any person or persons, any drug or medicine or other agency for the treatment, cure or relief of any bodily injury, deformity or disease." The court says that in this definition, the expression "medicine, in any of its departments" is as broad and inclusive as, and was doubtless used with the same meaning as, the expression "medicine, in any of its branches," contained in the prior section, which provides that "every person who shall practice or who shall attempt to practice medicine in any of its branches," etc., shall be punished, etc. It was not and could not be contended that chiropractics is a drug or medicine, within the meaning of the act; and, although it is an agency in the common acceptation of the term and if that term had been used without the association in which it is found there is no doubt but that it would have included the practice of chiropractics, yet it was not so used.

Under a familiar rule of construction, this general term "other agency" must be limited by the meaning of the specific terms "drug" or "medicine" preceding it, and can only include agencies of a like nature as those designated by said words. This rule of construction does not deprive the term "other agency" so used of all meaning, but only limits its meaning to agencies of the like nature and quality as those designated by the particular words.

The practice of medicine act was designed for the protection of the public against all who are not learned and skilled in the science of medicine and the treatment of diseases, and is to be liberally construed in that regard; still it inures to the benefit of the favored class—those who are sufficiently learned and skilled, and are permitted by its terms to practice the profession—and creates a new offense for its violation unknown to the common law. On that account, it must be strictly construed. The practice of chiropractics, as defined, understood, and used in the treatment of ailments of the body, is not included within the definition of the practice of medicine in said statute, and not limited by it to those only who have procured certificates in accordance with said act.

The many cases cited from other states do not assist greatly in the construction of this statute, having arisen under statutes materially different from it. This statute was not intended to include the practice of osteopathy, which chiropractics more nearly resembles than it does the practice of medicine; for the legislature passed an act regulating that practice, which expressly declares that it is not included within the practice of medicine. It is not necessary to decide whether the statute regulating the practice of osteopathy was violated by the defendant by the practice of chiropractics, the indictment not charging a violation thereof.

In a brief dissenting opinion, Justice Hart says that he believes that a chiropractor is amenable to the penalties of the statute under consideration. This statute is broader than the statutes in the cases cited in the opinion of the majority. It specifically refers to the practice of medicine in all its branches. This would include osteopathy, except that a subsequent section of the same act expressly excludes it from the definition of the practice of medicine in all its branches. The phrase "other agency" is a very broad term, and includes the use of the hands. The practice of medicine in all of its branches includes surgery, and surgery is practiced by manual operation, as well as by instrumental appliances. The object of the statute under consideration is, broadly stated, for the protection of the public health, and the legislature evidently intended to guard the overcredulous against injury that might result from yielding to the solicitations of those who undertake to diagnose and prescribe for human ailments without possessing the learning and qualifications prescribed by the statutes. The fact that the legislature used the term "practice of medicine in all its branches," and expressly exempted osteopathists from the operation of the statute, convinces that it intended to include all others who practice the art of healing by the phrase "other agency."

Rights and Risks in Home Treatment of Injuries

(Biggie vs. Chicago, Burlington & Quincy Railroad Co. (Mo.), 140 S. W. R. 602)

The Kansas City Court of Appeals affirms a judgment for $2,000 in the plaintiff's favor for injuries sustained by stepping into a hole in a depot platform. The court says that the defendant earnestly attacked the verdict on the ground that it was grossly excessive, and in the attack went to the length of charging the plaintiff with being a malingerer and with having aggravated the slight injuries she received from falling into the hole by her own subsequent gross negligence. But the evidence not only was substantial but convincing that the plaintiff had been rendered a permanent cripple by her injury. She received a bad sprain in her left ankle, which pained her from the start, but which she thought would yield to simple home treatment. The imputation of negligence on her part must rest on the fact that she did not call a physician, but relied on her own homely skill. The court thinks the characterization of her conduct was an issue of fact for

the jury to determine, and that the court would do wrong to hold her culpable in law. In many poor families physicians are not called except in extreme cases. Ordinary injuries, such as cuts, bruises, burns and sprains are given none but home treatment. Courts should be slow to condemn as contrary to rules of law the ordinary practices and usages of the large class of people who must practice the closest economy to make ends meet. It appeared that this sprain, which, at first, promised to be nothing of great consequence, turned out badly, as such injuries sometimes do, and developed into a serious injury which would permanently handicap the plaintiff in her efforts to earn a living. The court cannot say that a verdict of $2,000 for such an injury was excessive. The jury were instructed, among other things, that, as between the plaintiff and the defendant, it was her duty to have used all ordinary care for the treatment and recovery of her injuries, and if she neglected to do so, and as a result of such neglect her injuries became aggravated and incurable, she could not be allowed any damages for such aggravation or incurable condition. In other words, she could be allowed only such sum of money as would fairly compensate her for the damages necessarily resulting from such injuries and nothing more. If, in the exercise of ordinary care, she should have employed a physician to treat her limb, and failed to do so, and her injuries were increased or aggravated, or made permanent or incurable, because she did not have medical advice and treatment, then she could not be allowed anything for such increased damages or incurable condition.

No Damages for What Simple Operation Will Prevent

(Leitzell vs. Delaware, Lackawanna & Western Railroad Co. (Pa.), 81 Atl. R. 543)

The Supreme Court of Pennsylvania holds that a proper view of the law was presented by a request that the jury be instructed, in this personal injury case, that if they believed that the condition of the plaintiff could be relieved by a simple surgical operation, which an ordinarily prudent man would undergo, such facts must be taken into consideration as an element which would reduce the amount of damages to which the plaintiff would otherwise be entitled. The court says that the plaintiff of course was entirely at liberty to refuse to submit to an operation; but, if the effect of his refusal would be to retain permanently a condition which might be removed by a simple operation, which an ordinarily prudent man would, under the circumstances, undergo, that matter should certainly be taken into consideration by the jury in estimating the damages. No compensation should be allowed for damages that might reasonably be averted. Evidence as to the probability of a cure by means of a simple operation was not to be received in mitigation of damages, but as a proper method of showing the actual damages sustained. If the plaintiff could be cured by an operation reasonably safe, and one which would commend itself to the judgment of a prudent man, the injury would certainly be less serious than one for which no hope of cure existed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Journal of Experimental Medicine, Lancaster, Pa.

April, XV, No. 4, pp. 367-428

1 *Pathogenesis of Hemorrhagic Diseases of New-Born. E. A. Graham, Chicago.
2 *Glomerular Lesions of Subacute Bacterial Endocarditis. G. Baehr, New York.
3 *Function of Circle of Willis. S. P. Kramer, Cincinnati.
4 Experimental Infection of Mule with Trypanosoma Hippicum by Means of Musca Domestica. S. T. Darling, Ancon, Canal Zone.
5 Infection of Mules by Trypanosoma Hippicum Through Mucous Membranes. S. T. Darling, Ancon, Canal Zone.
6 Respiratory Waves of Blood-Pressure, with Investigation of Method for Making Continuous Blood-Pressure Records in Man. J. Erlanger and E. G. Festerling, St. Louis.
7 *Ultimate Results of Aortic Transplantations. A. Carrel, New York.
8 Technic for Cultivating Large Quantity of Tissue. A. Carrel, New York.
9 Influence of Heat on Different Serums as Culture Media for Growing Tissues. R. Ingebrigtsen, New York.
10 Constricting Influence of Adrenalin on Human Coronary Arteries. H. G. Barbour.
11 *Experimental Study of Arteries in Shock. W. Bartlett, St. Louis, Mo.

1. **Hemorrhagic Diseases of New-Born.**—Those conditions of the new-born characterized by a hemorrhagic tendency, icterus and fatty changes, Graham believes are probably all syndromes which may occur as the result of a number of toxic agents. All of them, however, have been produced by him experimentally by the action of a single experimental agent. Chloroform is not held to be the only substance that has this power. It stands rather as one member of a group of agents, the effects of which in general and in individual organs are similar to those caused by lack of oxygen. The essential features of these conditions have also been produced by direct asphyxiation of the fetus. The suggestion is therefore made that underlying all these symptoms and pathologic complexes, there is a deficiency of oxidation, general, local, or selective, thus bringing this group of diseases into the general category of acute yellow atrophy of the liver, eclampsia, pernicious vomiting, cyclic vomiting, phosphorus poisoning, etc. Graham believes that in human beings, chloroform and asphyxia must, in many instances, be the determining causes. There remain, however, other cases in which different factors are to be sought. Summarizing his experimental results Graham says that administration of chloroform to pregnant animals a short time before term has been followed within a few hours or days by labor. The regularity with which labor follows the anesthesia seems to indicate that it is induced thereby. The mothers may give no external evidences of injury or they may die with icterus, hemorrhages and acute parenchymatous degeneration of the viscera, accompanied by fatty infiltration which is most marked in the liver. The offspring may be born dead, or may die soon after birth, or live for a few days in apparent health and then develop symptoms ending in death, or they may show only mild symptoms and go on to a normal development. The changes shown by the offspring are always much the same, except as regards intensity and distribution. The general changes and those in the different viscera are hardly distinguishable from those that may be produced experimentally by general or local protracted asphyxia; namely, cyanosis, hemorrhages, acute parenchymatous degeneration with marked fatty infiltration of the liver, or acute parenchymatous degeneration and some fatty infiltration in the other viscera, edema and icterus. According to the degree, relative proportion, or site of these changes, we have the picture of Buhl's disease, Winckel's disease, etc., as the case may be.

2. **Glomerular Lesions of Subacute Bacterial Endocarditis.**—In most cases of chronic or subacute bacterial endocarditis due to the endocarditis coccus (*Streptococcus viridans*), Baehr found a distinctive pathologic lesion in some of the glomeruli due to bacterial emboli. The salient features of the pathologic picture are first, the involvement of one or more loops of a variable number of glomeruli; secondly, the absence of any visible disease in the uninvolved glomeruli and in the uninvolved portions of affected glomeruli; and thirdly, the association in most of the bacterial cases of all the various stages of the glomerular process often seen in a single microscopic section. The lesion does not occur in cases of acute endocarditis, and up to the present time it has been absent in cases of subacute bacterial endocarditis due to organisms other than the endocarditis coccus. In a group of cases having vegetations that are typical of those in the active stage of subacute endocarditis (except that they are free from bacteria and healing or healed), the healed stage of this distinctive glomerular lesion is present, although it is less extensive than in the active bacterial cases. These cases, therefore, are most probably examples of subacute bacterial endocarditis due originally to the endocarditis coccus, but in which the endocardial vegetations have become free from bacteria rather early in their course and are now healing or healed. During the active bacterial stage of the disease, if the glomerular lesions are not too numerous, the only symptoms produced

will be an almost constant hematuria, usually demonstrable only microscopically. If the glomerular lesions are very numerous, symptoms resembling those of subacute hemorrhagic nephritis may occur and may even cause a fatal issue. If the glomerular lesions are very numerous but not sufficient to cause death, and the cardiac lesion should go on to healing, a contracted kidney, secondary to the glomerular lesion, may subsequently ensue and produce the typical symptoms and death. In such a case, the finding of the healed or healing lesion of subacute bacterial endocarditis will be accidental.

3. **Function of Circle of Willis.**—In the experiments made by Kramer on the function of the circle of Willis, fifty dogs and three monkeys were used. The animals were anesthetized with ether and 2 c.c. of a 3 per cent. solution of methylene blue were injected into a carotid or vertebral artery by means of a fine hypodermic needle. The circulation of the blood in the artery that was being injected was not interfered with except by the insertion of the needle. Just enough pressure was used in the syringe to overcome the arterial blood-pressure. The animals were killed by opening the heart two minutes after the injection of the methylene blue. The brain and spinal cord were then removed and the distribution of the methylene blue was noted. The results obtained were surprisingly constant. On injection into one carotid artery, the other carotid and both vertebrals being unobstructed, the methylene blue was distributed to all that part of the cerebral hemisphere which is supplied by the anterior and middle cerebral arteries by the anterior chorioid, and by the posterior communicating arteries on the same side as that on which the injection was made. As a rule, the anterior portion of the frontal lobe on the opposite side was also stained; that is, there was some crossing over of the stain in the region of the anterior cerebral artery, but not into the other vessels. In *Macacus sinicus*, the posterior two-thirds of the occipital lobe was unstained after carotid injection. Otherwise the staining corresponded to that described in the dog. If methylene blue is injected into one of the vertebral arteries in the living dog, the other vertebral artery and both carotids being unobstructed, the stain is distributed to those parts of the brain and spinal cord supplied by both vertebral arteries, the basilar artery and both posterior cerebral arteries and their branches. In *Macacus sinicus*, the posterior two-thirds of both occipital lobes was stained after vertebral injection. If one vertebral artery is tied and the other injected, then the distribution of the stain is incompletely bilateral in the parts supplied by the vertebrals; that is, the staining is incomplete on the side on which the vertebral was tied. If one carotid was tied and the other injected, no appreciable or constant difference in distribution could be noted; that is, the parts were stained as in the experiments in which one carotid was injected, the other carotid being unobstructed. If both carotids or both vertebrals are tied and one of the other arteries is injected, then the separation of the areas disappears and the stain is carried forward or backward as the case may be. In other words, the circle of Willis is an anteroposterior anastomosis between the carotids and the vertebrals, which under physiologic conditions does not permit the mingling of the blood streams. When, however, either the anterior or posterior arteries are completely blocked, then the anastomosis will supply blood to the areas of the central nervous system supplied by the blocked vessels.

7. **Aortic Transplantations.**—In several cats and dogs in which portions of the abdominal or thoracic aortas have been replaced by segments from other vessels, Carrel has observed a normal circulation after two, three and four years. As two of the animals died a few months ago, the anatomic results of the transplantations could be examined. In the first experiment, a segment of popliteal artery, extirpated from the leg of a young man and preserved for twenty-four days in cold storage, was transplanted on the abdominal aorta of a small bitch. The animal lived in excellent health for four years and two months, became pregnant several times, and finally died during labor. The abdominal aorta was normal, but the human arterial segment was slightly dilated and its wall was composed of connective tissue only. In the second experiment, a segment of a dog's jugular vein, preserved for twenty-four hours in cold storage, was transplanted on the thoracic aorta of a fox terrier. In spite of slight lesions of the cord due to interruption of the aortic circulation during the operation, the animal remained in excellent health. After two years and two months, the dog died of an epidemic disease. The descending aorta was normal. The transplanted segment had about the same caliber as that of the aorta, but its wall was composed of connective tissue, with no evidence of muscular or elastic tissues. In these two experiments, the walls of the transplanted segments contained neither muscle nor elastic tissue fibers and were not thicker than those of the artery. Nevertheless they were able to withstand the pressure of the blood without undergoing any marked dilatation.

11. **Arteries in Shock.**—As a result of his experimental work Bartlett says there can be no doubt of the fact that the rate of inflow in shock was faster than normal, and in his experiments the average increase was 36 per cent. It is concluded, therefore, that decreased vasomotor tone is an accompaniment of shock.

Journal of South Carolina Medical Association, Seneca

March, VIII, No. 3, pp. 61-92

12 Nasal Polypi. J. W. Jervey, Greenville, S. C.
13 Early Diagnosis of Cancer of Uterus. F. T. Merlwether, Asheville, N. C.
14 Successful Removal of Two Pieces of Steel from Eye with Electro-Magnet. C. W. Kollock, Charleston, S. C.
15 Case of Parinaud's Conjunctivitis. J. G. Johnson, Chester, S. C.
16 Treatment of Alcoholism: Who Shall Treat It? W. Cheyne, Sumter, S. C.
17 Part Played by Mouth in Digestion. F. M. Durham, Columbia, S. C.

Maryland Medical Journal, Baltimore

April, LV, No. 4, pp. 79-104

18 *Cardiopathies Complicating Pregnancy and Labor. A. Samuels, Baltimore.
19 Social Progress. P. A. Morrow, New York.
20 Influenza: Odonto-Neurosis. W. A. Mills, Baltimore.

18. **Cardiopathies of Pregnancy.**—When we consider the great dangers of cardiopathies complicating pregnancy, Samuels says the question naturally arises, whether women with heart disease should marry. This is by no means a settled question. We all know that when heart disease is complicated with any condition that throws an additional strain on it, it endangers the patient's life. However, matrimony and pregnancy are not identical terms, and we do know that the great majority of women with good compensation go through pregnancy without any noticeable ill-effects. Marriage to many girls means an improvement in their social condition. It may mean a life of comparative ease as compared with the possible necessity of earning a livelihood by work. These are factors worth considering when the physician is asked the question whether a girl with a cardiac leaion should be permitted to marry. Indiscriminate denial of marriage to all women having valvular lesions may imply an injustice to many of them. In all cases of valvular lesion, heart failure will occur sooner or later, but it is an open question whether its onset will be precipitated by child-bearing, and it is doubtful if the risk of this is so marked as to justify denying her the right to marry. Samuels would say, however, in women who have a heart lesion, with concomitant pulmonary or renal disease, one should advise against marriage. In view of the high death-rate of mitral stenosis, one should be very cautious in advising marriage for these women.

New Mexico Medical Journal, Las Cruces

March, VII, No. 6, pp. 187-214

21 Tendon Work for General Practitioner. W. L. Brown, El Paso, Texas.
22 Thyroid and Parathyroid. L. G. Hust, Albuquerque.
23 Pancreatitis. W. G. Hope, Albuquerque.
24 Diagnosis of Malignant Disease. F. De la Vergne, Albuquerque.
25 Uncinariasis. J. W. Colbert, Albuquerque.

St. Paul Medical Journal, Minn.

April, XIV, No. 4, pp. 187-236

26 *Pericecal Hernia with Report of Apparently Unique Epicecal Hernial Sac. A. Schwyzer, St. Paul.
27 Public Health and Morality. C. E. Smith, St. Paul.
28 Rural Tuberculosis Survey. E. B. Dauherty, Pine City, Minn.
29 Status Lymphaticus. A. R. Hall, St. Paul.

26. **Pericecal Hernia.**—Schwyzer's patient, a man, was operated on for a moderate soreness about McBurney's point. On lifting the cecum out of the small abdominal incision it seemed that the appendix suddenly became disengaged and free. This, however, was not very definite, as it was more a remembrance after the pocket had been found on the outer and lower surface of the rather bulky cecum. This pocket did not show any cicatricial portions; on the contrary, it was a most beautiful reduplication of the delicate peritoneum. A probe was put into it to get the exact extent of the cavity. A connection with the appendix seemed evident and was made very plausible; first, by the proximity of the two; second, by the sharply doubled-up form of the appendix, which was otherwise quite free; third, by the exactly sufficient size, width as well as depth of the pocket for the thus doubled-up appendix; fourth, by the sensation (though not very definite), as though the appendix suddenly was released from somewhere at the moment the cecum was raised out of the abdominal incision. In two other cases Schwyzer found the appendix lodged in such a pocket, out of which it could be lifted and where it had been resting free at least from any macroscopically evident adhesions. The more outspoken inflammatory state of both these appendices (though clinically not very acute) made things less definite.

Ophthalmic Record, Chicago

March, XXI, No. 3, pp. 113-170

30 Influence of Electric, Acetlyene and Oil Headlights on Night Operation of Trains and Train Signals. J. R. Newcomb, Indianapolis.
31 New Cataract Knife. F. Brawley, Chicago.
32 Definite Resection of Outer Orbital Wall. H. Gifford, Omaha, Neb.

Lancet-Clinic, Cincinnati

March 30, CVII, No. 13, pp. 353-370

33 Autopsies as Aid in Teaching Special Pathology. W. E. Moseley, Toledo, Ohio.
34 Correlation of Clinical Teaching and Physiology. R. G. Hoskins, Columbus, Ohio.
35 Early Diagnosis of Pulmonary Tuberculosis. B. F. Lyle, Cincinnati.
36 Surgical Cholecystitis. D. D. De Neen, Cincinnati.

Philippine Journal of Science, Manila

December, VI, No. 6, pp. 428-506

37 *Influence of Philippine Climate on White Men of Blond and of Brunette Type. W. P. Chamberlain, U. S. Army.
38 *Systolic Blood-Pressure and Pulse-Rate of Healthy Adult Males in Philippines. W. P. Chamberlain, U. S. Army.
39 *Red Blood-Corpuscles and Hemoglobin of Healthy Adult American Males Residing in Philippines. W. P. Chamberlain, U. S. Army.
40 Occurrence in Philippines of Associated Spirochætæ and Fusiform Bacilli in Ulcers of Throat (Vincent's Angina), of Mouth and of Skin and in Lesions of Lungs (Bronchial Spirochætosis.) W. P. Chamberlain, U. S. Army.

37. **Influence of Philippine Climate on White Men.**—From a consideration of all the data at his command Chamberlain says it appears that blonds are quite as well able as brunettes to withstand the influences of the Philippine climate for a period of five and one-half years. In case of residence beyond the latter period he is not in a position to express an opinion based on any extensive personal observation. Exact observations continued for a period of one year on large numbers of blonds and brunettes in the military service showed no constant or material differences for the two complexion types. The amount of sickness occurring in the Philippines was larger among the blonds in the soldier group and among the brunettes in the Scout-Constabulary-Police-Group. In the latter group the proportion of men who had never been sick was much larger for the blond type. As regards disagreeable symptoms referable to climate the evidence was conflicting, but on the whole the blonds suffered more than the brunettes. Among the soldiers invalided home the brunettes were in much larger proportion than they were in the Philippine forces as a whole. In the Scout-Constabulary-Police-Group, which had an average of 5.5 years of tropical service, the proportion of blonds, as compared with brunettes, was probably as high as it ever had been. The military conduct of the blonds appeared to be as good as that of the brunettes, except perhaps in regard to alcoholism. In the United States the relative incidence of insolation was probably slightly higher among the brunettes than it was among the blonds. On the whole the blonds seemed fully as able as the brunettes to withstand Philippine service for a period of two years, and probably as able for a period of five or six years. The incidence of nervous diseases and insanity in the army during the last seven years has not been different in the Philippines from what it was in the United States. Chamberlain regards it as doubtful if the actinic component of the sunlight is a factor in tropical morbidity and deterioration.

38. **Systolic Blood-Pressure and Pulse-Rate.**—The mean blood-pressure in temperature climates for healthy males between 15 and 30 years of age lies between 115 and 122 millimeters of mercury when a 12.5 centimeter armlet is employed. When the 12.5 centimeter armlet is used the blood-pressure of American soldiers, serving in the Philippines, was found by Chamberlain to average 115 millimeters for the period 18 to 30 years of age, and 118 for the period 30 to 40 years. This indicates that the blood-pressure of Americans residing in the Philippines differs but little if any from the average at home. Usually the lowest readings for Americans living in the Philippines were obtained in the first three months of tropical residence, but there was no progressive tendency for the pressure average to rise or to fall with increased length of residence up to a limit of three years, beyond which our work did not extend. The blood-pressure of Americans was lower during the hottest part of the year, but the difference was very slight, only about three millimeters. There was a well-marked tendency for the blood-pressure of Americans to rise with increasing age. Neither complexion-type nor the use of underwear and hat linings of orange-red color exerted any appreciable influence on the blood-pressure of American soldiers. There was no well-marked tendency for the blood-pressure or pulse-rate to rise with increasing height and weight of the individual. As was to be expected, exercise raised both the blood-pressure and the pulse-rate.

39. **Red Blood Corpuscles and Hemoglobin.**—The erythrocyte counts obtained by Chamberlain among healthy young soldiers in the Philippines could not be considered as differing from the normal, as seen in Europe and America.

Kentucky Medical Journal, Bowling Green

March 15, X, No. 6, pp. 243-276

41 After-Treatment of Abdominal Operations. L. S. McMurtry, Louisville.
42 Electro-Therapeutics. J. J. Moren, Louisville.
43 Albuminuria. J. R. Morrison, Louisville.
44 Treatment of Alcoholism. B. J. O'Connor, Louisville.
45 Future Preventive Medicine. J. N. Hurty, Indianapolis, Ind.

American Journal of Diseases of Children, Chicago

April, III, No. 4, pp. 269-275

46 *Recurrent or Periodical Vomiting. J. P. Sedwick, Minneapolis.
47 *Etiology and Treatment of So-Called Hemorrhagic Disease of New-Born: Report of Cases. O. M. Schloss, New York and L. J. J. Commiskey, Brooklyn.
48 *Recent Developments in Pasteurization of Milk for General Market. E. H. Schorer, Boston.
49 *Juvenile Tabes. G. E. Price and C. E. G. Shannon, Philadelphia.
50 *Acute Glandular Fever in Children. S. V. Haas, New York.
51 Adjustable Metabolism Bed for Infants and Young Children. B. R. Hoobler, New York.

46. **Recurrent or Periodical Vomiting.**—Of Sedgwick's series of twenty-two cases of periodic vomiting twenty patients had adenoids or enlarged tonsils. Most of them had fever before or during the attacks. The posterior cervical glands were usually enlarged. A very common prodrome of the attacks was sore throat or nasal discharge. One "had bleeding nose at the times of the attacks." Chorea minor, rheumatism and endocarditis were complications in three cases. Geographical tongue and asthma were noted. Sedgwick directs attention particularly to the surprising result following removal of the adenoids in some of these cases. One patient had classical, frequent, recurrent vomiting from the latter half of his first year. Tonsillitis was a usual prodrome of the attacks. The tonsils and adenoids were removed. The child has been perfectly well since. A second patient had typical attacks from his second year. The adenoids were removed when he was 6 years old. He had no more attacks for a year. He had two light attacks during the eighth year. Then he developed

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appendicitis, and has been perfectly well since his appendix was removed. In a third case rhinopharyngitis always accompanied the attacks. The attacks did not cease at once after removal of the adenoids, but became gradually lighter and less frequent. The patient has had no attacks for several years. The histories of all the remaining cases are similar to those cited.

47. **Treatment of Hemorrhagic Disease of New-Born.**—In the hemorrhagic conditions of the new-born Schloss and Commiskey found that the coagulation of the blood may be normal, delayed or absent. A deficiency or absence of thrombin or fibrinogen may give rise to imperfect blood coagulation and uncontrollable hemorrhage. In some cases of hemorrhage in the new-born in which blood coagulation is apparently normal, it seems probable that the hemorrhage is due to some localized vascular lesion or defect present only in the areas from which the bleeding occurs. The subcutaneous injection of whole blood is harmless and is of apparent value in the treatment of the hemorrhage. The authors have treated nine patients by means of the subcutaneous injection of whole blood. This procedure is simple, perfectly harmless, and so far as can be judged from a small series of cases, efficacious. The injected blood is quickly absorbed and apparently without harmful influence on the patient. One case, however, which was treated in the same way, terminated fatally, but in this case there was practically no external bleeding and it was impossible to determine whether the fatal outcome was due to hemorrhage or to some other cause. Another case also terminated fatally. This patient was in a moribund condition at the time treatment was instituted and died three and a half hours after admission to the hospital. The authors believe that the best results can be obtained from the injection of 10 to 30 c.c of blood, the injection to be repeated every four to eight hours as long as the hemorrhage continues. It can scarcely be expected that such a therapeutic measure will prove a cure for all cases. There are apparently a number of different conditions which may be responsible for hemorrhage in the new-born, and there is no indication that the pathologic condition of the blood is always the same. In the cases in which the hemorrhage is profuse and which are as a rule quickly fatal, it seems scarcely possible that any of the simpler measures could be of value. In the treatment of such cases an immediate transmission of human blood is probably the only means from which any result could be expected.

48. **Pasteurization of Milk for General Market.**—Basing his conclusions on observations and study of various pasteurizing devices and results obtained by them, Schorer says it is evident that the results derived in the laboratory cannot be transferred directly to the dairy. A routine of 140 F. for twenty minutes while efficient in the laboratory is not a safe one in the dairy. The safest method for pasteurizing is in the sealed bottle, allowing at least thirty minutes for heating to the temperature of pasteurization and then pasteurizing at 145 F. for thirty minutes—all done under official supervision. Laboratory men not acquainted with commercial conditions should refrain from advising on the new departure of pasteurizing in a bottle, so that milk producers and dealers will not needlessly have to expend as much money for these devices and systems as a result of what they regard as expert advice as they have for pasteurization devices in the past.

49. **Juvenile Tabes.**—The authors found that the course of this affection, like that of adult tabes, is chronic and the prognosis, therefore, is good as to life. The frequency with which optic atrophy and blindness occur, however, should cause one to be very guarded in the prognosis as to vision.

50. **Acute Glandular Fever in Children.**—A twelfth case of glandular fever is reported by Haas. He says that this disease, characterized by fever, prostration, acute, painful swelling of the lymphatic glands, chiefly those of the neck, running a characteristic course, contagious in character, often occurring in epidemic form, the failure to recognize which may lead to false and grave prognosis, is entitled to a place in all textbooks on pediatrics which at present fail to mention it, and a fuller consideration in most of those which do.

Southern California Practitioner, Los Angeles

March, XXVII, No. 3, pp. 93-146

52 Enteroptosis and Altered Function of Diaphragm Resulting from Intrathoracic Inflammations. F. M. Pottenger, Monrovia.
53 Symptoms and Diagnosis of Tubal Pregnancy. H. A. Johnston, Anaheim.
54 Physical Examination of School Children, with Special Reference to Effect of Exercise on Heart. E. C. Beach, Los Angeles.
55 Feeding and Care of Infants of Poor. P. V. K. Johnson, Los Angeles.
56 Philippine Problem as Seen by Physician. I. W. Brewer, U. S. Army.
57 Altitudes, Latitudes and Platitudes. E. S. Goodhue, Hawaii.
58 For Whom Shall the Physician Vote? T. G. Davis, Los Angeles.

New York Medical Journal

March 30, XCV, No. 13, pp. 625-676

59 Some Problems in Chemotherapy of Cancer. W. J. Morton, New York.
60 Inflammations of Endometrium and Endometritis. R. T. Frank, New York.
61 Ionic Surgery in Cancer of Rectum. G. B. Massey, Philadelphia.
62 Traumatism of Eyeball. F. P. Hoover, Jacksonville, Fla.
63 Social Worker as Factor in Solving Dispensary Problem. S. H. Brown, Philadelphia.
64 Postgraduate Work in Vienna and Budapest. F. McMorrow, Syracuse, N. Y.
65 *Plea for Use of Metric System in Prescription-Writing. H. Sicherman, Buffalo.
66 Duty of One Physician to Another. A. J. Huey, New York.
67 Sex Hygiene in Relation to Eugenics. I. Delany-Barbour, New York.

65. **Metric System in Prescription Writing.**—Sicherman outlines a plan whereby the size of the doses as remembered in grains or fractions thereof will help in writing entire prescriptions in the metric system. Take a prescription of a certain size, having a certain number of doses, as a unit, say a two-ounce mixture, a teaspoonful at a dose. This would make approximately fifteen doses. This number is close enough for practical purposes, and above all, makes a number that can easily be doubled, tripled or quadrupled, as necessity may require. Now, two ounces are approximately 60 grams and one gram contains approximately 15 grains. All one has to remember is the dose of the drug in grains to be able immediately and without any uncertainty to put down the number of grams for the entire 60 grams (or c.c.) mixture (the dose being one teaspoonful or approximately 4 c.c.). When the dose is less than a grain, it is just as easy. Simply take that decimal part of the gram which the dose, in parts of a grain, indicates. Gr. ¼ of codein sulphate would be 0.25 gram.

New York Medical Journal

April 6, XCV, No. 14, pp. 677-728

68 Sex Mutilations in Social Therapeutics. G. F. Lydston, Chicago.
69 Diet in Nervous Disorders. T. A. Williams, Washington, D. C.
70 Regulation of Fees. H. Hays, New York.
71 Three Cases of Publotomy. A. J. Rongy, New York.
72 *Alcohol and Spirit of Camphor as Surgical Dressings. B. Robinson, New York.
73 Torsion of Uterine Annexa in Hernias of Nurslings. A. V. Moschcowitz, New York.
74 *Surgical Treatment of Hallux Valgus and Bunions. W. L. Kellar, U. S. Army.
75 Study of Physiology and Pathology of Skeleton on Oral Extremity of Thorax (Stethographic Method). C. M. Desvernine, Havana, Cuba.

72. **Alcohol as Surgical Dressing.**—As a surgical dressing, Robinson says he has not seen any equal to alcohol, or spirit of camphor and water, as a rule one part to three, but the former sometimes pure, with or without an impermeable covering of rubber tissue or oil silk. He also suggests to surgeons who still irrigate, the use of alcoholic solutions to wash out the abdominal cavity after cleansing, in cases of diffuse septic peritonitis from appendicitis.

74. **Surgical Treatment of Hallus Valgus.**—In Keller's method the primary incision exposes the first metatarsophalangeal joint. The capsular ligament is next incised and the structures at the base of the phalanx, including ligaments and periosteum, are pushed away from the articular surface; the phalanx is then disarticulated. With a Gigli saw, enough of the phalangeal head is removed to enable the distal portion to be placed in an overcorrected position medially, without impinging on the head of the first metatarsal. The exostosis on the metatarsal bone is now removed, but in order to pre-

serve the sesamoid area, so essential to the integrity of the tripod of the foot, the cut is made obliquely upward and outward along the length of the metatarsal. This cut extends from the inner edge of the sesamoid below, to a line above, which is well past the middle of the dorsum of the bone. The remains of the periosteum, capsular ligament, and other adjacent soft parts, are brought over the extremity of the resected phalanx by a figure of eight silkworm gut suture. A second and similar suture, placed posteriorly to the first, obliterates any remaining space and interposes some extra tissue. A gauze drain is introduced through a stab wound in the lower lateral surface; this goes to the joint space and is removed in forty-eight hours. A few figure of eight silkworm gut sutures bring the subcutaneous structures into apposition, and the wound is closed in the usual way. No catgut is used in any part of this operation. An overcorrected position is maintained by means of a well padded lateral splint or bandages, and after five days passive motion is instituted. The patient is not allowed to do much active walking until the end of the third week. Keller's experience with this operation covers a period of ten years, in which twenty-six patients have been operated on. The results in most of the cases were excellent.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

March, XIV, No. 3, pp. 141-203

76 Diphtheria Carriers and Their Treatment. H. Page, Fort Moultrie, S. C.
77 Psychotherapeutics. A. Gordon, Philadelphia.
78 Hematogenous Infection of Kidneys. L. B. Wiggs, Richmond, Va.
79 Twenty-Four Consecutive Prostatectomies. L. T. Price, Richmond, Va.

Boston Medical and Surgical Journal

April 4, CLXVI, No. 14, pp. 511-546

80 *Visceral Purpura and Angioneurotic Edema. C. F. Withington, Boston.
81 Short Account of Early History of Suprapubic Cystotomy. C. G. Cumston, Boston.
82 Freud's Psychology as Applied to Children. W. E. Paul, Boston.
83 Memorials to Oliver Fairfield Wadsworth, M.D. C. J. Blake, J. J. Putnam and M. Standish, Boston.

80. Visceral Purpura and Angioneurotic Edema.—Withington reports two cases of so-called Henoch's purpura, with abdominal distribution of the lesions.

American Journal of Urology, New York

March, VIII, No. 3, pp. 115-170

84 Neglected Principle in Cystoscopy. W. F. Braasch, Rochester, Minn.
85 Treatment of Multilocular Kidney Cystoma (Congenital Cystic Kidney) by Means of Multiple Punctures. T. Rovsing, Copenhagen, Denmark.
86 Use of Ultra-Violet Ray in Diseases of Genito-Urinary Tract. J. R. Hayden, New York.
87 Bladder Tumors Treated by Fulguration. D. A. Sinclair, New York.
88 Present-Day Diagnosis of Acquired Cutaneous Syphilis. W. J. Helmann, New York.
89 Improved Urologic Examining Table. L. Buerger and A. Hyman, New York.

Medical Record, New York

April 6, LXXXI, No. 14, pp. 651-696

90 Physical Examination a Requirement for Correct Diagnosis and Honest Treatment of Sick. A. M. Jacobus, New York.
91 Sexual Education of Child. R. Reed, Cincinnati.
92 Specific Treatment of Pyosalpinx. H. J. Farbach, Louisville, Ky.
93 *Fracture and Dislocation of Upper End of Humerus. J. B. Bissell, New York.
94 Salvarsan as Cure of Syphilis. J. M. Winfield, Brooklyn.
95 Clinical Technic for Enzymes. F. von Oefele, New York.

93. Fracture and Dislocation of Upper End of Humerus.—The trauma which produces dislocation of the shoulder joint is not usually a severe one. The injury producing fracture about the neck of the humerus may or may not be caused by great force. It would seem, says Bissell, that, however strenuous the exciting cause may be, after it had dislocated the shoulder it could hardly go on and fracture the bone, or vice versa. Again, if the head of the bone is broken off first, close to the upper extremity, as occurs most frequently in these cases, how is it possible for there to remain leverage enough to dislocate the joint surfaces? From the study of a number of these fracture dislocations Bissell has evolved a theory as to the probable causation, namely that the bone was fractured by the force used in trying to reduce the dislocation. The noise which the patient and the doctor heard, and the "slipping into the joint" which the physician feels, was nothing of the kind, but was due to fracture produced in this manner. Once having recognized the impracticability of restoring the injured parts to their proper position and function by manipulation there is nothing else for the surgeon to do except cut down upon the site of the injury, and properly and consistently adjust the distorted tissues to as nearly as possible their normal state. Operation naturally resolves itself into one of two methods of procedure. Either we endeavor to unite the fragments and keep them united until union takes place or we may be compelled to remove the upper fragment entirely. Here we use the lower fragment in the new joint. This latter variety of treatment is forced on us by any of the following conditions: The impossibility of proper adjustment of the two fragments to each other, comminution of the fragments, too wide displacement of the upper one, complete destruction of the circulation and nutrition of the upper fragment, smallness of the upper fragment, or destruction of the joint surface of the glenoid cavity. It is curious to see what good joint function may be had in the shoulder joint, in spite of the fact that the head of the bone has either been removed entirely from the joint surface and the human body, or that a false joint has been formed with a shortened or lengthened humerus, as the case may be. In such cases satisfactory shoulder joints are not infrequent with the glenoid cavity entirely out of business. The false joint in such cases not infrequently results in an almost normally acting shoulder, even with the glenoid fossa completely deprived of its function.

Canadian Medical Association Journal, Toronto

March, II, No. 3, pp. 173-268

96 Low Percentages in Infant Feeding. R. D. Rudolf, Toronto.
97 Pulmonary Tuberculosis. O. Bruce Brompton, London.
98 Difficulties in Prognosis in Pulmonary Tuberculosis. W. E. Ogden, Gravenhurst.
99 Surgical Aspect of Duodenal Ulcer. F. N. G. Starr, Toronto.
100 Case of Accidental Extra-Genital Syphilis. H. B. Anderson, Toronto.

Bulletin of Johns Hopkins Hospital, Baltimore

April, XXIII, No. 254, pp. 97-126

101 *Narcosis. M. Verworn, Bonn, Germany.
102 Felix Platter, with Extracts from His MSS. Memoirs Preserved at Library of Bale. C. G. Cumston, Boston.
103 *Tuberculosis in Infancy and Childhood. H. Koplik, New York.
104 *Effect of Prevention of Laking on Catalytic Activity of Blood. A. Strauss, Baltimore.
105 Pin Work Appendicitis; Report of Two Cases. G. C. Ney, Baltimore.

101. Narcosis.—Living tissues, says Verworn, even when their demand for oxygen has been raised to an extreme degree by fatigue or asphyxia, cannot, during narcosis, make use of oxygen, even when offered to them abundantly. Living tissue becomes asphyxiated during narcosis. The catabolic phase of metabolism continues in the form of a non-oxidative destruction, just as in asphyxia, and can also, as in asphyxia, be accelerated by exciting stimuli. Recovery from this asphyxia, is, as in every asphyxia, only to be attained by supplying oxygen. In the depression of nerves in an oxygen-free medium we deal with a slow, while in narcosis we deal with an acute, asphyxia. The more rapid or slower onset of depression is solely dependent on the rapidity with which the oxidation processes are abolished. The factor which produces the characteristic symptom-complex of narcosis is under all circumstances the suppression of the power to carry on oxidations. When the fate of molecular oxygen in the normal metabolism of the cells is recalled, from the moment at which it enters the living substance to the moment at which it decomposes the oxidizable materials into carbon dioxid and water, it is found that the narcotic, which overflows the cell, could establish its inhibitory action on the oxidation at various stages of this process. In the first place one might conceive that the narcotic, when it has penetrated into the living substance, prevents in some way the entrance of molecular oxygen from the surrounding medium into the cell. Next one must consider the possibility that narcotics appropriate the oxygen which enters the cells, and use it for their own oxidation. A third possibility of the interference with oxidation is that the narcotic in some way

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blocks the molecules of oxidizable material, perhaps by a loose chemical fixation, and thus renders them inaccessible to oxidation, and the oxidation will thus cease. Finally, it might be assumed that the narcotic renders the oxygen-carriers incapable of activating the oxygen, so that the oxidizable materials could no longer be oxidized and decomposition would proceed only in non-oxidative form. However, Verworn emphasizes that the conception regarding the nature of inhibition of oxygen metabolism in narcosis is of a purely hypothetic character. It is only an established fact that narcotics induce an acute asphyxia of the cells. Herein is the essence of narcosis. During sleep, restitution occurs. The irritability, which becomes reduced in the course of the day as a result of the fatiguing action of sensory stimuli, gradually rises again. The fatigue of the ganglion cells, which, as we know, depends only on a relative lack of oxygen, becomes completely dispelled. The supply of oxygen, which during constant activity was not quite sufficient to keep irritability at its maximum, is, after the cessation of functional demands, fully sufficient to banish the fatigue. In short, during sleep, restoration occurs principally by the action of oxygen. In the morning the ganglion cells are refreshed and possess their full capacity for work. In narcosis there is, on the contrary, a depression of the oxidation processes. Experiments show that even with a free supply of oxygen a fatigued ganglion cell did not recover at all during narcosis. There occurs, rather, a gradual asphyxia, and, although this process is only developed to a small extent in light narcosis, still it presents just the reverse of that which sleep brings to the ganglion cells. In the one case, recovery from fatigue by oxidation; in the other, prevention of restitution by inhibition of the oxidation process. There can be no confusion between sleep and narcosis.

103. **Tuberculosis in Infancy and Childhood.**—The prognosis of tuberculosis in infancy and early childhood, Koplik says, is bad on account of the tendency of the infection at this time to spread and become general. The acute course of fully 75 per cent. of the cases has been emphasized in the statistics on meningitis. The earliest age at which a tendency of tuberculosis to cure has been observed is 15 months. The older the child the better the prognosis. The best prognosis is beyond the age of 7 years and Koplik would say that the localized glandular and bone forms have a tendency to heal beyond this age limit. Koplik doubts whether the average physician, much less the layman, realizes the sacrifice of infant life through the contact of children with tuberculous persons. Children in the poor quarters of large cities, and small ones, for that matter, are always among the grown-ups. They are the hapless playthings of the old decrepit cougher and the young unsuspecting tuberculous mother. The intimate contact with the mother or father, who may be phthisical, is at once apparent. It is not uncommon, even in public prints of welfare agitators to find whole families who are tuberculous. Again, vendors of candies and cookies are seen, who, on the surface, are sufferers from tuberculosis. Added to this the universal habit among the poor of expectoration, raises the chances of infection among the children. In the face of all this it seems far-fetched to ascribe any marked influence in the causation of tuberculosis among children to milk from infected cows.

104. **Effect of Prevention of Laking on Catalytic Activity of Blood.**—The results of Strauss' experiments show that the prevention of the laking of the blood depresses its catalytic activity.

Archives of Ophthalmology, New York

March, XLI, No. 2, pp. 97-208

106 Simplified Method of Extirpation of Lachrimal Sac. C. Barck, St. Louis.
107 Case of Retrobulbar Pneumococcic Abscess of Right Orbit. H V. Dutrow, Ancon, Canal Zone.
108 Unusual Case of Epibulbar Sarcoma. F. H. Verhoeff, Boston.
109 Additional Notes on Patient with High Astigmatism. B. L. Millikin, Cleveland.
110 Exceptional Causes of Failure in Operative Treatment of Strabismus. A. Bielschowsky, Leipsic.
111 Case of Incongruous Homonymous Hemianopsia. O. Schirmer.
112 Case of Antral Disease in Four-Months-Old Child, with Marked Orbital Symptoms. F. Krauss, Philadelphia.
113 Operation of Excision of Tarsus and Conjunctiva (Heisrath) in Old Trachoma. J. H. Claiborne, New York.

Louisville Monthly Journal of Medicine and Surgery, Ky.

March, XVIII, No. 10, pp. 289-320

114 Blood Cultures as Aid in Early Diagnosis of Typhoid. L. K. Baldauf, Louisville.
115 Circumcision. C. Skinner, Louisville.
116 Importance of Proper Feeding After Cellotomy. J. H. Carsten, Detroit.
117 Treatment of Cerebral Hemorrhage. E. M. Hummel, New Orleans.

West Virginia Medical Journal, Wheeling

March, VI, No. 9, pp. 291-326

118 Operative Treatment of Fractures. J. E. Cannaday, Charleston.
119 Should State Medical Society Have Increased Power? J. C. Irons, Elkins.
120 Vesical Urinary Retention. C. L. Holland, Fairmont.
121 Laboratory Methods in Diagnosis. H. L. Robertson, Charleston.

Journal-Lancet, Minneapolis, Minn.

March 15, XXXII, No. 6, pp. 141-168

122 Use and Abuse of Carbohydrates in Infant-Feeding. C. G. Grulee, Chicago.
123 Abdominal Pain, Together with Aspects Relating to Diagnosis. A. T. Mann, Minneapolis.
124 New Public Health; Control of Non-Infectious Diseases. H. W. Hill, Minneapolis.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Journal of Children's Diseases, London

March, IX, No. 99, pp. 97-144

1 Syphilitic Affections of Bones Met With in Childhood. D. C. L. Fitzwilliams.
2 Ten Years as Dental Surgeon to Children's Hospital. S. F. Rose.
3 Morbilliform Rash in Child. J. Allan.

Indian Medical Gazette, Calcutta

February, XLVII, No. 2, pp. 49-88

4 Proposed Bill to Consolidate and Amend Law Relating to Lunacy. M. J. Shaw.
5 Hypnotism and Psychotherapy. V. B. Green-Armytage.
6 Air Movement in Association Wards. W. G. King.
7 Intestinal Parasites in Wardha District. M. F. Reaney.
8 Sanitation in Plains. L. Reynolds.
9 Syphilis in Thibet. R. F. D. MacGregor.
10 Treatment of Aural Sepsis. L. G. Fink.

British Medical Journal, London

March 23, I, No. 2673, pp. 653-708

11 Physician and Pathologist on Heart Failure. Sir T. C. Allbutt.
12 *Estimation of Heart Power: Blood-Pressure; Hypertension; Hyperpiesis; Hypertonus. W. Russell.
13 *Serum and Vaccine Therapy in Connection with Diseases of Eye. C. W. G. Bryan.
14 Case of Addison's Disease Treated with Tuberculin. J. M. H. Munro.
15 *Statistics of Eighty-Six Cases of Pneumonia; Alcohol in Treatment. A. T. Jones.

12. **Estimation of Heart Power.**—It is Russell's contention that when the artery wall is thickened, the thickening increases the resistance to compression, the resistance then becoming blood-pressure plus vessel wall. The difference between the thickness of the normal brachial artery, which collapses by its own weight when empty, and an artery thickened by sclerosis, that is, by muscular hypertrophy, is great. In addition, however, to the muscular thickening, the thickened muscular coat retains the power to contract and to relax. When it contracts the wall becomes still thicker, and the lumen becomes still smaller. To such a thickened vessel one must not only overcome the resistance of the blood-pressure, but of the hypertonic vessel wall in addition. The phenomena have passed from the physiologic to the pathologic, and therefore to the clinical. As it is true that the thick-walled vessel requires greater force to obliterate its lumen than the thin-walled vessel requires, it follows that when the thick muscular coat contracts beyond its normal tonus, the vessel wall is further thickened, and the lumen is further diminished, so that still greater pressure is required to obliterate the lumen and to stop the pulse wave. The hypertonically contracted sclerosed artery is more resistant to pressure than the tonically contracted one. It thus follows that in taking hemomanometer observations three factors of clinical importance have to be considered, namely, (1) blood-pressure; (2)

structural changes in the wall of the artery; (3) hypertonus of the muscular coat. On the correctness of the estimate of these separate factors will depend the correctness of the conclusions, and will determine the real value that this instrument will be in clinical work.

13. **Serum and Vaccine Therapy in Eye Disease.**—Chronic inflammations of the lacrimal sac, Bryan finds, offer a hopeful field for treatment by vaccines. Next in frequency to pneumococcus comes staphylococcus as infecting organism, and such cases can be treated with success by doses of 100 to 500 million of stock vaccine repeated once a week. *Staphylococcus aureus* is the cause of many varieties of chronic or recurrent disease of the lids, and such disease can be cured by vaccine in doses of 100 to 1,000 million. Blepharitis is due to such infection, and is usually associated with an error of refraction. Cases may be cured by means of staphylococcus vaccine, and if the refractive error be corrected there is no tendency to relapse. Chalazions and hordeola show great tendency to recur frequently in some patients; cure can be obtained by a three months' course of treatment by staphylococcus vaccine. Many varieties of acute conjunctivitis clear up so rapidly with antiseptics that there is no indication for further treatment. Acute gonococcal conjunctivitis is a disease of grave prognosis, and here vaccine is of great value. Of two severe cases which Bryan treated, in one a cure was obtained in ten days, in the other no apparent benefit resulted. He has treated three cases of gonococcal ophthalmia in new-born infants with doses of one-half to 1 million of vaccine; the disease became cured in each case without infection of the cornea.

In acute gonococcal conjunctivitis, Bryan says that if the treatment be commenced before the internal parts of the eye are affected, good results may be obtained with vaccine, but it is necessary to use very small doses repeated at short intervals, the object being to avoid as far as possible negative phases, and to obtain only rapid and repeated positive phases. Every effort must be made to increase the blood-supply of the cornea and to wash away discharge frequently. Free discharge is to be looked on as useful, as it is by this means that opsonins are brought through the diseased tissues. Of the more chronic forms of conjunctivitis, Parinaud's conjunctivitis is probably due to *Staphylococcus albus*. Bryan has treated one case with staphylococcus vaccine for some weeks, but was unable to make out any good effect from the treatment. Cases of conjunctivitis due to the diplobacillus of Morax, and others due to Friedländer's bacillus, have been benefited by vaccine treatment. It is difficult to prepare a vaccine from the diplobacillus, owing to its delicate growth; cultivation on peritonitic serum agar has given the best results in his experience.

In staphylococcal ulceration of the cornea vaccine treatment has given good results. In acute ulcer of the cornea, due to pneumococcus, treatment by vaccines has been followed by a fair measure of success, but it is necessary to begin the treatment early, as the disease usually progresses rapidly. Immediately the diagnosis is made 25,000,000 of polyvalent stock pneumococcus vaccine should be given; cultures of the patient's own organisms should be planted, and a specific vaccine made as rapidly as possible. Twenty million of this is a suitable dose to commence with, but may be increased in four or five days if the treatment is being regulated by estimations of the opsonic index and clinical appearances. A variety of acute streptococcal infection is the pseudomembranous ophthalmia of infants. Toxemia is intense and death is the usual result. In internal disease of the eye due to pyogenic organisms the obtaining of a bacteriologic diagnosis is difficult. In all such cases vaccines can be used with good hope of success, cultures being obtained from the primary focus of disease.

15. **Statistics of Pneumonia.**—Jones is convinced that it is unwise and unnecessary to prescribe alcohol in every case of pneumonia, for he says it is possible that it may, and does, do more harm than good in many cases. He has divided his series of eighty-six cases into two parts, those of his former treatment and those of his later treatment, and on comparing the result in each category it is as follows: *First Series:* Thirty-six cases with fourteen deaths, or 38 per cent. mortality. *Second Series:* Fifty cases with nine deaths, or 18 per cent. mortality. The result is better without the routine treatment by alcohol. In cases showing signs of cardiac failure by increase in pulse-rate and weakness thereof, Jones prescribes alcohol, but his observation was this, that cases requiring alcohol generally proved fatal notwithstanding.

Journal of Laryngology, Rhinology and Otology, London

March, XXVII, No. 3, pp. 129-184.

16 Analysis of 123 Consecutive Cases in which Operations Were Performed for Mastoid, Labyrinthine and Intracranial Complications of Suppurative Otitis Media. J. S. Fraser and J. K. M. Dickie.
17 Diagnostic Value of Suction-Syringe in Maxillary Antral Sinusitis. P. Watson-Williams.
18 Education of Medical Student and Specialist in Diseases of Throat, Nose and Ear, Germany. Position of Oto-Laryngo-Rhinology in German Medical Schools. von Eicken.

Journal of Tropical Medicine and Hygiene, London

March 15, XV, No. 6, pp. 81-90

19 Blackwater Fever in Burma. L. G. Fink.
20 Salvarsan and Leprosy. T. L. Sandes.

Lancet, London

March 23, I, No. 4621, pp. 771-818

21 Paratyphoid Fever and Meat Poisoning. F. A. Bainbridge.
22 Certain Phases in Evolution of Man. A. Keith.
23 Feeble-Mindedness and Measurement of Intelligence by Method of Binet and Simon. W. C. Sullivan.
24 Pharyngeal Suppuration: Course and Direction of Various Types. G. W. Badgerow.
25 Acute Myelitis with Optic Neuritis (Neuromyelitis Optica). E. F. Clowes.
26 Cosmetic Surgery (Plastic). W. H. Battle.
27 *Pharyngeal Diverticulum. E. B. Waggett and E. D. Davis.
28 *Dietetic Treatment of Diabetes. P. J. Cammidge.
29 *Immediate Results of Sanitarium Treatment of Tuberculosis. J. A. D. Radcliffe.
30 *Acute Intestinal Obstruction. E. Gillespie.
31 Crawford Williamson Long, the Pioneer of Anesthesia. D. W. Buxton.

27. **Pharyngeal Diverticulum.**—The patient, aged 40, complained of difficulty in swallowing. For the past five years he had always returned a small quantity of food after each meal. These symptoms gradually increased in severity, and for the last three months he had noticed a swelling on the left side of the neck, which increased in size after taking food. If he compressed the swelling about an ounce of food and saliva regurgitated into the mouth, and this had increased in quantity during the past few months. The difficulty in swallowing had become more marked toward the end of a meal, being distinctly noticeable after the first few mouthfuls. In addition he volunteered the statement that he was "short of breath" after food and on slight exertion. There was fulness and bulging of the left sternomastoid muscle immediately below the level of the cricoid cartilage, and the swelling became more marked after taking food. On giving the patient food he was able to swallow the first few mouthfuls without trouble, but in order to take more he had to turn the head to the right and to flex the neck.

The patient was examined by the esophagoscope. At the level of the upper edge of the cricoid cartilage the orifice of the esophagus was seen as a narrow slit, but on the posterior wall a large opening was seen through which the tube passed easily, but after this point the view was obstructed by frothy saliva. The tube could be passed another three inches, but was then obstructed. From this it was gathered that the pouch was about three inches in length. The tube could be passed into the esophagus and no stricture was observed. The radiogram taken after a bismuth meal showed the pouch on the left side of the esophagus and extending behind the clavicle. Waggett operated and invaginated the pouch. It was about the size of a hen's egg, and resembled a piece of small intestine with a net-work of veins on its surface. It was found to open from the posterior wall of the esophagus above the level of the cricoid constriction and opposite the cricoid cartilage.

28. **Dietetic Treatment of Diabetes.**—In the treatment of diabetes Cammidge says everything depends on systematic dietetic measures being instituted at as early a stage as possible, for the whole future of the case depends on its management at this period. It is exceedingly important that the diet should be prescribed quantitatively, as well as qualitatively, and this is true, not only of the well-marked cases, but also of the mild

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forms, and even of transient glycosuria, which, if neglected, may pass later into typical progressive diabetes. To merely give a patient lists of foods that he may take, and must avoid, is less than half the battle. What he needs to be taught is how much of each permitted food he may, and must, take to keep up the supply of energy he requires. At first all his food must be weighed, but it is remarkable how quickly the eye can be trained to accurately estimate weights and measures, and after a time only an occasional appeal to the balance is necessary. One useful purpose that the preliminary experimental investigations serve is to provide an opportunity for such education, since observations of this nature can only be satisfactorily carried out in a nursing home or hospital, where the food is prepared under strict supervision, and both it and the excreta are accurately weighed and measured.

29. **Sanitarium Treatment of Tuberculosis.**—A review of recorded statistics by Radcliffe shows that with sanitarium treatment alone we can only reckon on 20 to 25 per cent. of all patients losing their bacilli as an immediate result of the treatment. When a combination of tuberculin with sanitarium treatment is adopted, at least 50 per cent. of the patients will lose their tubercle bacilli. The earlier the patients come under treatment the better the results. A comparison of the immediate results is so much in favor of tuberculin that Radcliffe finds it difficult to understand the opposition to its employment, both in treatment and diagnosis.

30. **Acute Intestinal Obstruction.**—Gillespie's patient, aged 10, complained of abdominal pain localized round the umbilicus. He also vomited. The pain and the vomiting continued until admission, the latter becoming more frequent. Six days after the onset of the trouble the patient had fecal vomiting. The chest showed nothing abnormal. The abdomen was distended. Coils of intestine could be seen showing through the abdominal wall, and giving the step-ladder appearance of small intestine obstruction. The abdomen felt tense, but had not the rigidity of an inflammatory lesion. There was no localized tenderness on palpation. The movements with respiration were deficient. The percussion note all over was resonant. Rectal examination revealed a distended empty rectum; nothing abnormal was felt in the pelvis.

The abdomen was opened. Coils of distended and congested small intestine at once showed. On introduction the examining hand could feel a loop of intestine tightly constricted by a band. The portion of intestine was isolated and brought to the surface. The strangled loop was found to be about 18 inches of the ileum close to its lower end. The band was also a piece of intestine, stretched, and thinned out. Further search showed that it was the appendix vermiformis. It had encircled the loop, passing at first over and in front of it, then downward behind. Finally, the tip appeared round the lower border and gained an attachment in front of the mesentery close to its junction with the gut. In addition the loop of intestine was rotated through about 90 degrees from right to left of the patient on an axis lying in the length of the mesentery and at right angles to the intestine. The appendix was freed and found to have a recent perforation close to the tip. The perforation had been sealed for the time being by the attachment to the mesentery. The patient died on the following day.

Archives des Maladies de l'App. Digestif, Paris

February, VI, No. 2, pp. 61-120

32 Estimation of Digestion of Fat from Examination of Stools. (Recherches sur la digestion des graisses et coprologie clinique.) H. Labbé and P. Laure.

33 Roentgenoscopy of Hour-Glass Stomach. (Radiodiagnostic de l'estomac biloculaire.) G. Legros.

34 Case of Tabetic Gastric Crises Complicated by Colon Trouble. (Sur un cas de crises gastriques tabétiques combinées à des crises de réaction colique.) A. Mathieu.

Archives de Medecine des Enfants, Paris

March, XV, No. 3, pp. 161-240

35 Tongue with Median Raphe. (La langue scrotale chez les enfants.) J. Comby.

36 Dementia Præcox in Children. (La démence précoce dans l'enfance.) P. Haushalter.

37 Mental Anorexia in Infants. (Anorexie mentale chez les nourrissons.) Buffet-Delmas.

38 Tracheo-Bronchial Lymphadenitis. (Les accidents de l'adénopathie trachéo-bronchique.) F. Maillet.

Bulletin de l'Académie de Médecine, Paris

March 5, LXXVI, No. 10, pp. 173-192

39 *Internal Hemorrhage from Rupture of Graafian Follicle. (Inondation péritonéale par rupture d'un follicule de de Graaf.) D. J. Cranwell.

39. Hemorrhage from Rupture of Graafian Follicle.—The syndrome suggested ruptured tubal abortion but the severe hemorrhage was traced to a ruptured but otherwise apparently normal Graafian follicle and there were no signs of pregnancy.

Bulletins de la Société de Pédiatrie, Paris

February, XIV, No. 2, pp. 33-111

40 *Early Treatment of Scoliosis. (Scoliotique traitée depuis l'âge de six ans.) Nageotte-Wilbouchewitch.

41 Skin Lesions in Child from Bromid Poisoning. (Bromides papulo-tuberculeuses géantes.) J. Hallé and Dorlencourt.

42 Laryngospasm in Infant from Intranasal Instillation of Resorcin in Oil. G. Raillet.

43 Appendicectomy in Five-Day Infant. (Observation de péritonite aigue probablement appendiculaire chez un enfant de cinq jours.) Canaguier and Hamel.

44 Serotherapy of Diphtheric Paralysis. (Paralysie des deux droits externes d'origine diphtérique. Traitement par la sérothérapie. Guérison.) F. Terrien.

45 Bronchoscopy for Foreign Body in Trachea or Bronchus, or Both. (5 cas de corps étrangers trachéaux et bronchiques, dont deux chez le même enfant traités par la bronchoscopie.) Gulsez.

46 *Desiccated Milk in Infant Feeding. (Le lait sec dans l'alimentation des nourrissons.) E. C. Aviragnet, L. Bloch-Michel and H. Dorlencourt.

40. Early Treatment of Scoliosis.—In the case described the little girl of 6 had right dorsal scoliosis and severe deformity of the ribs but no signs of rachitis, although the glands in the neck were enlarged and the child presented otherwise symptoms of the "exudative diathesis." Vertical suspension according to Sayre, with lateral suspension to correct the hump and gymnastic exercises to develop the chest and strengthen the muscles were systematically applied for a year, supplemented then by an orthopedic corset removed only at night and during exercising. The use of a Lorenz bar at home effectually supplemented the exercises done under the physician's eye two or three times a week. The mother and child appreciated the necessity for the exercises, so they were done systematically and now, six years later, the child is apparently normal, standing erect with no protrusion of the spine and the sides of the trunk parallel, free from kyphosis or lordosis; the development of the chest surpasses that of ordinary children of her age. The contrast is striking, however, when she bends forward, the asymmetry of the spine and ribs then showing as a large hump which subsides as the erect position is resumed. The contrast is peculiarly instructive as one thinks of the disfiguring deformity in other cases of the kind in which such persevering measures have been neglected. Wilbouchewitch adds that the child's general health has benefited remarkably from the three mornings a week taken from school to devote to gymnastic exercises. The child has also had some weeks in the country each year. Wilbouchewitch says that the exercises are to be kept up until the flexibility of the spine begins to decrease, about the age of 16 or 17, when the lateral flexion exercises can be dropped but the exercises of the muscles are to be kept up and the orthopedic corset is still to be worn. The aim then will be to have the spine set permanently in the best attitude attained. Even after this is accomplished, a corset will be still advisable.

46. Desiccated Milk in Infant Feeding.—During the last three years milk powder has been given a thorough trial in infant feeding in the private practice and infant consultations of Aviragnet and his coworkers, and they here report the results with sick and healthy infants. Twenty case-histories are given to illustrate the various groups of cases in which this method of feeding was adopted. In mixed feeding of normal infants the effect was as good as, if not better than with other kinds of milk, while the milk powder has several superior advantages. For dyspeptic infants it also proved equal and sometimes superior to other means of milk feeding. In cases of gastric dyspepsia with much vomiting, the milk powder permitted ample nourishment with the minimum of fluids. A certain proportion of the dyspeptic babies seemed to

thrive better on the milk powder than on any form of cow's milk. The milk powder used in the tests contains less than 4 per cent. of water, and it keeps for a month or so after the box has been opened. There are three varieties on the market, that made with full milk, that with skimmed milk and with half skimmed milk. The last variety was the one used exclusively in the experiences reported.

Journal de Chirurgie, Paris

February, VIII, No. 2, pp. 113-232

47 *Operation for Femoral Hernia Through the Inguinal Canal. (Cure radicale de la hernie crurale par voie inguinale.) C. Dujarier.

47. Inguinal Access to Femoral Hernia.—Dujarier has operated in thirty-one cases of femoral hernia by incising the skin over the inguinal canal and thus reaching and correcting the femoral hernia from the rear. He gives an illustrated description of the technic and commends it as the best for all such cases except when the patient is much debilitated or elderly and corpulent, when it is necessary to reduce the operation to the very least possible. A direct femoral operation is better also when gangrene is feared. But under other conditions the inguinal route has a number of superior advantages. The technic for repair of the femoral opening precludes all danger of a secondary hernia at the inguinal canal. One of his patients succumbed the tenth day; necropsy was not permitted. The omentum had been strangulated for twenty-four hours when the operation was done, but the wound had healed and all seemed to be doing well. Another patient had suppuration around a deep suture. All the others recovered without mishap or sign of recurrence of the hernia since. The inguinal mode of access permits better than any other technic the ligation of the sac high up and thus solid closure of the canal, he declares.

Journal de Médecine de Bordeaux

March 3, XXIV, No. 9, pp. 129-144

48 *Glioma of the Brain in a Syphilitic. (Glioma du cerveau.) E. Bitot and C. Moutalier.

48. Glioma of the Brain.—Bitot and Moutalier call attention to the peculiar painfulness of pressure on the eyeball, in the case reported, on the side of the lesion. Both eyeballs were tender, but this one was much more so than the eyeball on the other side. The patient was a man of 37; mercurial treatment on the basis of the positive Wassermann reaction gave no relief to the symptoms, indicating a tumor compressing the brain. As a last resort injection of salvarsan was contemplated but the patient died suddenly before it had been done.

Journal d'Urologie Méd. et Chirurgicale, Paris

February, XXX, No. 2

49 Pericardiitis with Chronic Nephritis. (La péricardite des brightiques.) Widal and A. Weill.
50 Large Cyst in the Adrenal. (Note sur un grand kyste de la capsule surrénale.) P. Bourcy and F. Legueu.
51 Pathology and Surgery of Horseshoe Kidney. (Considérations sur la pathologie et la chirurgie du rein en fer à cheval.) G. Botez.
52 Exstrophy of the Bladder. (Etude anatomo-pathologique de l'exstrophie complète de la vessie.) Hovelacque. Commenced in No. 1.

Presse Médicale, Paris

March 13, XX, No. 21, pp. 213-220

53 *Erythema with Malignant Syndrome in Infectious Diseases. V. Hutinel.

March 16, No. 22, pp. 221-228

54 *Primary Sarcoma of the Stomach. (Le sarcome primitif de l'estomac.) A. Gosset.
55 Gastric Cancer of Structure Suggesting Intestinal Tissue. (Cancer intestinal de l'estomac.) A. Gosset and P. Masson.

53. Erythema with Malignant Features in Infectious Diseases.—Hutinel states that the pernicious erythema described as accompanying typhoid fever was noted in thirteen of thirty-six typhoid cases in children in his service during 1890, and six soon died. He has encountered this same syndrome since in other infections and with intestinal derangement, and reports a recent typhoid case in detail. The syndrome includes an erythema affecting the knees, elbows, buttocks, etc., with vomiting, green diarrhea, retraction of the abdomen, pinched nose and general expression as in peritonitis, a sudden drop of temperature with great weakness and rapid loss of flesh. The characteristic erythema may develop in the course of an eruptive disease but distinct from the latter. The entire syndrome seems to be the result of involvement of the adrenals or of toxic action on them, and recent experiences suggest that epinephrin may prove the specific remedy for it. In the case reported a boy of 12 with this malignant syndrome, superposed on typhoid fever, showed marked improvement under epinephrin while conditions became aggravated whenever the epinephrin was suspended. Hutinel gives from six to ten drops a day of the 1 per thousand solution. In one case he kept up this dosage for several weeks with benefit and without by-effects. If it does not seem to be benefiting the child, he soon drops it.

54. Primary Sarcoma of the Stomach.—Gosset reports the recovery of a man of 61 after removal of most of the stomach involved in a myosarcoma. He has compiled seventeen other cases not included in Zesas' list of 154 published last year. The later history is known of only eleven of the thirty-two patients treated by gastrectomy; these were known to be living from three months to over seven years later.

Revue de Chirurgie, Paris

March, XXXII, No. 3, pp. 369-548

56 *Tardy Removal of Bullet in Brain. (Indications de l'extraction tardive des projectiles intra-cérébraux.) S. Banzet.
57 The Veins in the Pyloric Region. (La valeur topographique des veines de la région pylorique.) P. Mocquot and L. Houdard.
58 Fracture of the Ankle. (A propos des fractures du cou-de-pied.) Destot.
59 *Tumors in the Cerebello-Pontine Angle. (Tumeurs de l'angle pontocérébelleux. Indications opératoires et traitement chirurgical.) G. Pascalis. Commenced in No. 1.
60 Advantages of Sterilization of the Hands with Alcohol Without Previous Rinsing or Soaping. (La désinfection exclusive des mains par l'alcool sans lavage ni savonnage préalables.) E. Marquis. Commenced in No. 2.

56. Tardy Extraction of Bullet in the Brain.—Banzet discusses the methods of treating gunshot wounds of the head, agreeing with Guinard that "the bullet is nothing; the route it has traveled is everything." The management of the case immediately after the accident is quite different from what is indicated when the operation is done months later; he reviews the literature on this latter subject. The most common mental symptom—when such exists—of a bullet within the skull seems to be loss of memory or modification of the character, inability to concentrate the attention—the brain has been impoverished by the traumatism, as Esquirol puts it, even when the patient seems to be tolerating it without harm. In a personal case described a girl of 17 fired a bullet into her right temple and left hemiplegia followed but subsided entirely in six weeks. After healing of the wound which had suppurated she had no further symptoms except occasional headaches in the left side. Four months after the accident the bullet was located by radioscopy, applied by an ingenious device described in detail, and was extracted from the left side, being found at a depth of over 3 cm. in the upper part of the temporal lobe. Recovery was prompt and complete except that the patient developed pure verbal deafness, that is, not accompanied by any other form of aphasia. The verbal deafness gradually subsided and the girl at present, nearly nine months later, shows no trace of disturbance from her injury or the operation.

59. Tumor of the Cerebellopontine Angle.—Pascalis' article is based on the material at the Salpêtrière and Necker hospitals at Paris and the cases on record, a total of 101 radical operations and twelve palliative. The data confirm the ease of enucleation of the tumor in most of the cases and the fatal prognosis when left undisturbed. The diagnosis is generally possible from the syndrome of pressure on the brain and the symptoms from compression of the nerves at the base of the brain. Removal of the tumor is imperative unless the patient is too much debilitated or there is more than one tumor or visceral metastasis suspected. When the growth can be definitely located only one of the fossæ need be opened, but under other conditions Cushing's decompressive technic is

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preferable. The condition of the blood-pressure decides whether to operate at one or two sittings. Pascalis advocates making a square flap, sacrificing the bone but respecting the sinuses and doing as little harm to the cerebellum as possible, aspirating away the blood automatically to keep the field clear. The preliminary preparation of the patient and the post-operative care are extremely important for the outcome. The pressure can be relieved by a simple vertical incision over the fossa, not opening the dura. In one of the unpublished cases Pascalis obviated all trouble from hemorrhage by conducting the blood away automatically by continuous aspiration from a water jet, through a tube over nine feet long. The tumor was a sarcoma and was readily shelled out, restoring the patient, a man of 40, to health. Just as the tumor was being drawn out the tube on the faucet worked partly loose and water squirted, hitting the ceiling and falling back in spray directly on the field of operation which the surgeon strove to protect with his hands during the moment until the faucet was turned off. Notwithstanding this mishap, the wound soon healed, except for a little oozing which kept up for three weeks, during which time lumbar puncture showed the cerebrospinal fluid a little turbid and containing tetragenus microbes, evidently from contamination of the subarachnoid space with the unsterilized hydrant water. The automatic aspiration away of the blood was of the greatest assistance, keeping the field open and unobscured. In two other unpublished cases a palliative operation had been done to relieve compression; necropsy disclosed a fibrosarcoma in each case. In one it was as large as a hen's egg, but the patient had been entirely freed from pain and the wound had healed well, when he succumbed to postoperative aspiration pneumonia. In the other case the right lateral sinus was accidentally cut into during the decompressive operation according to Cushing, and the patient died on the table from the resulting hemorrhage.

Semaine Médicale, Paris

March 13, XXXII, No. 11, pp. 121-132

61 *Cirrhosis of the Liver in the Young with Degeneration of Corpus Striatum. (L'hépatite familiale juvénile à évolution rapide avec dégénérescence du corps strié; dégénération lenticulaire progressive de Wilson.) J. Lhermitte.

March 20, No. 12, pp. 133-144

62 Treatment of Eclampsia by Decompressive Trephining. (A propos du traitement de l'éclampsie puerpérale par la trepanation; essai d'une nouvelle théorie nerveuse de cette affection.) R. De Bovis.

63 *Method for Reducing Dislocation of the Shoulder. (Un nouveau procédé de réduction des luxations de l'épaule.) Angelvin.

61. Cirrhosis of the Liver with Degeneration of Corpus Striatum.—A case is reported and compared with Wilson's classical description of the syndrome from progressive degeneration of the lenticula of the corpus striatum associated with cirrhosis of the liver. The findings indicate that this familial form of cirrhosis of the liver in children with degeneration of the corpus striatum is a complex syndrome, other viscera being liable to be more or less involved, demonstrating the pathologic relations between the glands with an internal or external secretion—the liver in this case—and the central nervous system. The literature on the subject further is reviewed. The syndrome in question is inevitably fatal; the patients survived at most only about four years in the few cases on record. In the present case the first symptoms had been noticed two years and a half before the death of the boy at the age of nearly 13. The case was remarkable for an unexpected improvement in the symptoms which occurred after a few months, but this improvement lasted only for four months and the motor incoordination and spastic contractures, mental weakness and epileptiform crises then resumed their progressive course. Nothing was observed during life to indicate derangement of any viscera, but necropsy disclosed nodules of cellular hyperplasia in the liver with stenosis and necrosis and microscopic cirrhosis in some of the other viscera.

63. Dislocation of the Shoulder.—Angelvin strives to retrace, step by step, the dislocation process, and gives an illustration of his method. The operator draws the patient's arm around his neck and holds it with his off hand while with the other hand he manipulates the head of the humerus, exerting leverage on the patient's arm by the back of his own neck. The operator is thus able to apply extension, counter extension or reduction. In one case the head of the humerus could be felt in the subcoracoid cavity, but it was reduced by this method at once without assistance and the patient could use his arm normally in a few minutes. The trauma causing the dislocation generally pushes the head of the humerus forward, downward, inward and upward in turn, and the leverage reduction simply retraces these steps in turn: first the arm is raised and the head of the humerus thus depressed, then it is pushed outward, then upward and then backward. The principle of the method can be applied in correction of dislocation of the elbow, fracture of the clavicle, etc.

Berliner klinische Wochenschrift

March 11, XLIX, No. 11, pp. 485-532

64 Bacillary Dysentery. (Zur Kenntnis der Bacillenruhr.) H. Lüdke.

65 *Diagnosis and Treatment of Morbid Secretion in the Stomach. (Zur Diagnose und zur Therapie der Sekretionsstörungen des Magens.) R. Ehrmann.

66 Mouse Cancer. (Natur der Mäusegeschwülste.) H. Apolant.

67 Vital Staining and Chemotherapy. (Vitalfärbung und Chemotherapie.) W. Schuiemann.

68 *Leukocyte Inclusions in Scarlet Fever. (Diagnostische Bewertung von Leukocyteneinschlüssen bei Scharlach.) M. Kretschmer.

69 Sugar Metabolism in Pregnancy. (Zum Zuckerstoffwechsel in der Schwangerschaft.) H. Schlrokauer.

70 The Oxyuris in Pathology of the Appendix. (Zur Frage der Bedeutung der Oxyuren bei der Wurmfortsatzentzündung der Kinder.) Rheindorf. Commenced in No. 10.

71 Mortality During Great Heat of 1911. (Die Gesamtsterblichkeit und die Säuglingssterblichkeit während des Hitzeviertel-jahres 1911 im preussischen Staat und speziell im Stadtkreis Berlin.) R. Behla.

65. Abnormal Secretory Conditions in the Stomach.—Ehrmann says that patients soon cease to dread the introduction of the stomach tube when the importance of its findings is explained to them. When the tube slips in quickly they do not find it a very disagreeable procedure and may be induced to consent to its repeated introduction—this is particularly instructive as the findings may vary from time to time. The progress of the digestion, the degree of chymification when the stomach contents are siphoned out after a test-meal, is the index for the conditions in regard to secretion in the stomach. The essential point in treatment of secretory disturbances, both of nervous origin as well as from irritation of the stomach glands, is to spare the stomach all possible irritation, either mechanical or chemical. By his repeated application of the test-meal in numerous cases through years he has learned that the motor functioning has a marked influence on secretion and should be regarded more in the diet. Soup and milk, fluids in general which are usually regarded as extra digestible, are liable to stretch and drag down the stomach walls and hence should be reduced to the minimum. The food should be soft and warm and in case of hypersecretion should contain little salt, but should be mainly made up of albumin and fat. With atony of the stomach only three small cups of tea should be allowed during the day; meat should be steamed or roasted and served with abundance of unsalted butter. Raw eggs are useful as they take up the acid, but soft boiled eggs are more difficult to digest—notwithstanding their reputation to the contrary. In case of heart-burn he has his patients drink one or two raw eggs, as preferable to the usual sodium bicarbonate. With hypersecretion soft, salt-poor cheese is useful. He tries to keep the amount of starch dishes as low as possible, as they stimulate secretion and lack the ability to take up the free acid. He gives a sedative to reduce the irritation of the vagus, generally a combination of belladonna 0.5 gm. with pulverized and tincture of valerian *aa* 2 gm., made into 30 pills, one to be taken after a meal three times a day. He has found these measures useful for gastric ulcer. With deficient gastric secretion, starch dishes are useful as also vegetables, retaining the water in which they are boiled, all vegetables mashed soft. Meat should be chopped fine and freed from stringy fibers. Sauces, salt and spices are useful to stimulate secretion, as also lemon juice and strong bouillon, 3 or 5 tablespoonfuls before eating (more fluid would dilute the hydrochloric acid still more). A glass of wine or liqueur will aid in promoting secretion. The teeth should be in good order, and it should not be forgotten that chronic liquor drinking leads

to achylia. He adds that this diet to spare the stomach should gradually lead into a diet to exercise the stomach functioning (*Uebungstherapie*). The gastro-intestinal tract, more almost than any other organ, adapts itself to the tasks imposed on it. He cites the rapid retrogression of extreme dilatation of the stomach after stenosis of the pylorus has been corrected, and the restoration to place of the sagging stomach as soon as the intake of fluid is stopped. These examples and others he mentions show how necessary it is to keep the digestive tract up to its work after it has been freed from irritative processes by the above measures to spare it.

68. **Leukocyte Inclusions in Scarlet Fever.**—Kretschmer has examined the leukocytes in 70 cases to investigate Döhle's findings of inclusions in the protoplasm of the leukocytes as specific for scarlet fever. His findings in thirty cases of scarlet fever confirmed those of Döhle while the findings were negative in all but four of fifty cases of other diseases and twenty normal persons. He gives illustrations of the findings with the Michaelis' azure-blue method, emphasizing the diagnostic importance of these findings.

Deutsche medizinische Wochenschrift, Berlin

March 14, XXXVIII, No. 11, pp. 489-536

72 Disintegration of Albumin, Anaphylaxis and Internal Secretion. (Eiweissabbau, Anaphylaxie und innere Sekretion.) A. Schittenhelm.
73 *Mechanical Factors in Gastric Ulcer and Its Relations with Cancer. (Ueber die mechanischen Momente in der Pathogenese des runden Magengeschwürs und über seine Beziehungen zum Krebs.) L. Aschoff.
74 *Technic for Roentgenoscopy of Secretion in the Stomach. (Einfache Methode zur röntgenologischen Ermittlung der Saftsekretion im spezieleeren Magen.) K. Fujinami.
75 The Stomach-Tube in Diagnosis. (Bedeutung des Magenschlauches für die Diagnostik.) M. Henius.
76 The Albuminoid in Orthostatic Albuminuria. (Natur und Rolle des durch Essigsäure fällbaren "Eiweisskörpers" bei orthostatischen Albuminurien.) H. Pollitzer.
77 *Inherited Morbidity. (Ueber Vererbung von Krankheiten.) B. Hirschfeld and F. Pick.
78 *Inflammatory Tuberculosis. (Zur Kenntnis der entzündlichen Tuberkulose—Poncet.) O. Reunert.
79 *Headquarters for Medical Reprints. (Zu den Reformen im medizinischen Publikationswesen: Eine Sonderdruck-Zentrale.) D. Berger.

73. **Mechanical Factors in Gastric Ulcer and Cancer.**—Aschoff has been studying for years the mechanical features and localization of gastric ulcers and their relation to the spine and neighboring organs. His assistants are soon to publish the reports of his research in detail. The data show that the general assumption of an embolus or thrombus in a gastric artery as the exciting cause of chronic gastric ulcer is incorrect, although such may be incriminated possibly in acute ulceration. The lesion becomes chronic from mechanical factors, especially the stagnation of gastric juice. It locates at certain points where the stomach wall is pushed in by neighboring organs, the liver, pancreas, spine, etc.—he lists six of these physiologic points where the interior of the stomach wall protrudes enough to hold back the stomach content to a greater or less extent. Other important factors are the traumas from mechanical rubbing and pushing, and chemical and temperature irritation from hot drinks. As these factors act mostly on the empty stomach, their action is felt most on the tops of the folds in the contracted stomach wall. Examination of these folds in the normal stomach wall throws light on the localization of gastric ulcers. The data presented show further that the so-called callous gastric ulcers, which the microscope reveals as cancer, are explained by the assumption that the cancer is the primary lesion and that the ulcer merely develops in the malignant lesion. The fact that the ulcer under these circumstances has the same conical shape as ordinary ulcer is an argument against the prevailing assumptions as to the probable cause of this special shape; vascular lesions cannot be responsible for it when it develops in a cancer.

74. **Gastric Secretion in Fasting Stomach as Sign of Cancer.**—Fujinami calls attention to the ease with which the amount of secretion in the stomach outside of periods of digestion can be determined by means of the sinking and floating capsules containing bismuth. When the two are swallowed together they can be seen side by side in the fasting stomach under normal conditions, but if the stomach contains a pathologic amount of secretion the distance between the floating and the heavy capsule is an index of the amount. He gives the details of fifteen cases to illustrate various groups of stomach affections. His experience seems to suggest that the presence of secretion in the absence of food is a sign that gastric juice is being secreted. On the other hand, the lack of this parasecretion with known stagnation is a sign of lacking secretion of gastric juice, and hence, in connection with the deranged motor functioning, points to malignant disease. This supplies another symptom of gastric cancer, namely, the finding that after six hours there is no parasecretion. A great advantage of the floating capsule test is that the stomach contents do not have to be aspirated.

77. **Morbid Heredity.**—Pick and Hirschfeld discuss the application of Mendel's law to human families and relate a number of instances in which the working of the law seems to be strikingly apparent. Among the families thus studied is the Habsburg family, the reigning family in Germany, the line of which can be traced back for several centuries, while numerous portraits of the various members of the family through many generations are extant.

78. **Inflammatory Tuberculosis.**—Reunert gives a summary of Poncet's views in regard to the frequency of a tuberculous origin for many joint and other affections of which the true nature has hitherto been unsuspected. He then describes a case from his own experience in which a woman of 30 developed nephritis, and the course of the case, the success of tuberculin treatment and other features demonstrated that the nephritis was a pure inflammation of tuberculous origin. This throws light on other cases of kidney disease of obscure origin, and suggests the importance of tuberculin treatment not only for nephritis but for so-called articular rheumatism in many cases. No tubercle bacilli were found in his case, and the almost total retrogression of the nephritis at present—judging from the urine findings—confirms the lack of the usual specific lesions.

79. See Berlin Letter in THE JOURNAL, April 20.

Medizinische Klinik, Berlin

March 17, VIII, No. 11, pp. 429-470

80 *Relative Gastric Insufficiency. (Die relativ Insuffizienz des Magens.) A. Schüle.
81 *Psychosis from Choke-Damp Poisoning. (Psychose durch Kohlenoxydvergiftung.) F. W. Quensel.
82 Salvarsan in Syphilis. (Weitere Erfahrungen über Behandlung der Syphilis mit Salvarsan.) O. Rissom.
83 Computing Machine for Blood-Count, etc. (Der "Cytax"—die erste Zähl- und Rechenmaschine im Dienste der Medizin.) Tojbin.
84 Tube-Casts in the Urine. (Cylindroide im Urin.) L. Boros.
85 Is Life Possible Without Oxygen? (Das Leben ohne Sauerstoff.) E. F. Lesser.
86 *Bibliographic References. (Ueber Zitate und Register.) E. Ruediger.

80. **Relative Insufficiency of the Stomach.**—Schüle remarks in regard to the diagnosis of relative insufficiency of the stomach that conditions often right themselves spontaneously for a time if the patients stay in bed and diet, so that it is difficult to detect in a patient who has entered a hospital or sanatorium. Outside of the institution the insufficiency may be quite pronounced. Treatment should be the same as for anacidity and motor insufficiency in general, the food all mashed or chopped, the meals small and often; no cabbage. After eating, the patient should lie down for an hour with a cold compress on the stomach on which should be laid a hot water coil of tubing. Both motor and secretory functioning are generally benefited by the Scottish douche, massage and faradization from without. The intake of fluids should be restricted. Climatic resorts by their general tonic influence are useful, and long experience has confirmed the benefit of systematic lavage of the fasting stomach. Organic stenosis belongs to the surgeon, and he should be called in before the patient begins to suffer from undernourishment.

81. **Psychosis from Carbon Monoxid Poisoning.**—In Quensel's case the poisoning occurred in a mine from choke-damp, and the man was unconscious for five days during which he incessantly tossed restlessly. This was followed by a condition suggesting paralytic dementia. The Wassermann reaction was negative. The syndrome was similar to that in previously published cases of psychoses following carbon monoxid poisoning.

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86. Bibliographic References.—Ruediger deplores the custom of citing a reference by the name of the author and of the periodical or book alone. The title of the article should always be given, he insists, to save the disappointment of finding that the article is on some subject foreign to our research when we take the trouble to refer to the original source. Even more exasperating, he remarks, is a general title as, for instance, "Diabetes Mellitus;" "A New Treatment for Asthma," etc. Why not specify the special features or the nature of the treatment, so that those particularly interested in this feature or special treatment can have their attention called to it and others waste no time over it. Inaccuracy in references, he says, is a common and annoying habit. He found one article recently with references to ten authors and the citations were inaccurate in nine of the ten. He says that J. Wolff in writing the second volume of his work on "Cancer," *Die Lehre von der Krebskrankheit*, cited 10,000 authorities and consulted the originals in nearly all. He found mistakes in fully 10 per cent. of all these references. In indexing, Ruediger adds, names containing ü or *ue* should be indexed naturally between *ud* and *uf*. Such names as Müller are often indexed as if written Muller, that is, between *uk* and *um*. Another source of confusion is when plurals of nouns are written according to the Greek or Latin style instead of the current terms. He does not approve of Roman numerals for designating volumes, saying that this becomes a common source of error when the number of volumes is high, as for instance for Schmidt's yearbook, the current volume of which is now CCCXIII. He advocates, instead, black-letter Arabic numerals of a little larger type than the page number. The year, volume and page are indispensable. He urges further a combination of the libraries of the different institutes connected with a university. The slight loss in convenience of access would be far outbalanced by the advantages of a uniform card-catalog arrangement of the books and reprints in the central library.

Münchener medizinische Wochenschrift

March 12, LIX, No. 11, pp. 539-624

87 *Uremia an Acidosis. (Die Urämie eine Säurevergiftung?) H. Straub and Schlayer.
88 *No Benefit from Transfusion of Blood in Pernicious Anemia; Five Cases. (Ueber unsere Misserfolge mit der Bluttransfusion bei perniziöser Anämie.) H. Bennecke.
89 *Cobra Venom Hemolytic Test in Pregnancy and Malignant Disease. (Die Kobragiftpferdebluthämolyse in der Schwangerschaft und bei Karzinom.) E. v. Graff and J. v. Zubrzycki.
90 Improved Technic for Operative Treatment of Large Hernias. (Ueber Radikaloperation grosser Hernien, speziell der Bauchbrüche mittels Verlötung.) F. König.
91 Operative Treatment for Lime Injury of the Eyes. (Eine chirurgische Behandlung für Kalkverletzungen des Auges.) R. Denig (New York).
92 Negative Results from Milne's Eucalyptus Oil Treatment in Scarlet Fever. (Ueber die Eukalyptusbehandlung des Scharlachs.) E. Koerber.
93 Quinin as an Oxytocic. (Erfahrungen mit Chinin in der Geburtshilfe.) T. Müller.
94 Technic for Röntgen Exposures of Deep-Lying Tissues. (Technik der Röntgenbestrahlung tiefliegender Gewebe.) F. Janus.
95 *Gastric Ulcer from Surgical Standpoint. (Ueber Magengeschwür, vom chirurgischen Standpunkte.) H. Lindner.
96 Dry Powder Treatment of Vaginal Disease. (Die vaginale Pulverbehandlung.) M. Nassauer. Commenced in No. 10.

87. Uremia an Acid Intoxication.—Straub and Schlayer say that Haldane's method of determining the carbon dioxid tension of the air in the alveoles is proving a reliable means for estimating the conditions in regard to the presence of acids. If the carbon dioxid tension falls below normal—which is a comparatively constant figure—then acidosis exists, and the extent of the fall is an index of the intensity of the acidosis. Repeated application of this test in eight cases of uremia has confirmed the assumption of a direct connection between uremia and acid intoxication.

88. Negative Results from Transfusion of Blood in Pernicious Anemia.—Bennecke remarks that at the Jena clinic there were never more than one or two cases of pernicious anemia a year for a long period, until last year, when twelve or thirteen cases were encountered. Five patients were treated with intravenous infusion of defibrinated blood, but no benefit was apparent in any instance, and death seemed to have been hastened by it in one case at least.

89. Cobra Venom Serodiagnosis of Cancer.—This article reports the continuation of research on the activation of cobra venom by human serum and its application as a test for cancer. (Some previous work in this line was mentioned in THE JOURNAL, Dec. 18, 1909, p. 2132.) In the forty-three cancer cases a positive reaction was obtained in 81.2 per cent. while with serum from other patients or healthy individuals, the reaction was positive only in 10 per cent. At the same time, the positive findings cannot be utilized in the diagnosis of cancer as the reaction occurred in an intense form even in women who had had their cancers removed years before and were free from all signs of recurrence.

95. Gastric Ulcer from Surgical Standpoint.—Lindner summarizes his conclusions from years of experience in this line in the statement that it is better to resect the stomach once too often on suspicion of gastric cancer than to let an operable cancer escape removal. On suspicion of cancer the operation should be thorough and radical, but under other conditions gastro-enterostomy is sufficient, provided the opening is kept open. In future he intends to supplement the gastro-enterostomy by exclusion of the pylorus as a routine measure, thus practically ensuring the permanent permeability of the gastro-enterostomy. One can safely count on curing 60 or 70 per cent. of the patients and materially improving 12 or 15 per cent.

Therapeutische Monatshefte, Berlin

March, XXVI, No. 3, pp. 157-236

97 Nature of Action of Digitalis. (Wesen der Digitaliswirkung.) W. Heubner.
98 *Calcium Salts in Treatment of Asthma. (Behandlung des Asthma bronchiale und verwandter Zustände mit Kalziumsalzen.) C. Kayser.
99 Pantopon Poisoning. (Ueber sogen. Pantoponvergiftungen, nebst Bemerkungen über tabische Atemkrisen und über die Wirkung eines morphinfreien Pantopons.) H. Winternitz.
100 Gymnastics of the Diaphragm. (Zur Uebung des Zwerchfells.) J. Oldevig.
101 *Trade Names for Drugs. (Einiges über Wortzeichenschutz für Arzneimittel.) Rathenau.
102 *The Evils in the Drug Trade. (Allerlei Heilmittel-Unheil.) W. Heubner.
103 Importance of Prescribing by the Official Name of Drugs. (Der freihändige Verkauf von Medikamenten und die Heilwirkung des Rezeptes.) K. Beerwald.

98. Calcium Salts in Treatment of Asthma and Allied Conditions.—Kayser refers to the literature on calcium salts as sedatives for the nervous system, and describes thirteen cases of asthma and allied conditions in which he found calcium chlorid effectual in prophylaxis. He ordered it in the form of 20 gm. calcium chlorid ($CaCl_2$); 40 gm. simple syrup, and distilled water to 400 gm. The patient took a tablespoonful of this in milk every two hours for eight days. No untoward by-effects were observed in any instance, and the patients all said that after a day or so they could breathe and expectorate easier and their sleep was no longer disturbed. After the third day there were no further attacks in all but two cases, and the relief has been permanent to date in some. In one case there was a complicating heart defect but this did not interfere with the success of the treatment. In one of the two refractory cases, the negligence of the patient may have been responsible for the lack of effect from the medication.

101. Proprietary Names for Drugs.—Rathenau is a lawyer and his views on the selection of proprietary names for drugs closely resemble what the Council on Pharmacy and Chemistry has recently announced in regard to objectionable proprietary names (THE JOURNAL, March 30, 1912, p. 953), basing his arguments on the same grounds of the public welfare and legal equity. The German authorities (*Reichsgericht*) have recognized in recent years the possibility of the proprietary name of a drug developing in time to be the free trade name for the article, and Rathenau suggests that when this has become the case the proprietors of the drug should be given a period, two or three years, to adapt themselves to this new condition and adopt a new fancy name for their article or retain the old name with some addendum, the maker's name, for instance, hyphenated with the name of the drug. Among the reasons cited for the trade name's indicating the most potent ingredients is the danger that a physician might happen to prescribe a mixture of several drugs all containing arsenic but

with nothing in the name to suggest this ingredient; as an example of this possibility he mentions atoxyl, soamin, orsudan and bectine, each of which is a modern preparation of arsenic, and their combination would be liable to result in a fatal dose of arsenic.

102. **Proprietaries.**—Heubner recalls that suffering humanity has no other interest in drugs than to be relieved of its ills as rapidly, as certainly and as inexpensively as possible. The manufacturers of pharmaceuticals have no other interest than to make money. This obvious proposition is sometimes doubted, he adds, at least in respect to the larger houses. The talents and scientific or technical achievements of certain persons connected with the firm are generally regarded as guaranteeing that the character of these persons must have a controlling influence throughout the whole concern. The fact is overlooked, however, that enterprises in which large capital is involved are and must be conducted on a business basis and from a business standpoint alone. A reputation for scientific accuracy and good relations with the press and similar important factors are all assets for the business success of a firm. Heubner discusses various abuses in the proprietary trade, and says that physicians must exert their influence against objectionable names of proprietaries and against the protection by a trade name of already known drugs. They must further exert their influence to have the reports on drugs in the medical press written more in the interests of the readers and less in the interests of the manufacturers. He urges physicians to insist on one single name for each drug, and not to permit already known drugs to be given a new proprietary name. He quotes and lauds THE JOURNAL for its campaign against misleading advertisements in medical journals, citing in full the last half of the editorial in THE JOURNAL Dec. 23, 1911, p. 2807, on "Proprietaries—Fraudulent and Otherwise." Heubner adds that he does not see much prospect of effectual control of advertising of proprietaries until some central trial station is established by the authorities to pass on the various pharmaceuticals. He mentions a number of recent instances in which reprints from certain German medical journals have been distributed for advertising purposes to the lay public. A lay press trade journal in Germany is quoted as urging the lay press to revenge itself on physicians for their hostility to advertising by publishing, more than hitherto, instances of blunders on the part of physicians and of recoveries from sickness without the aid of physicians.

Wiener klinische Wochenschrift, Vienna

March 14, XXV, No. 11, pp. 401-438

104 *Attenuated Criminal Responsibility. (Ueber krankhafte Triebhandlungen.) Wagner von Jauregg.
105 *Slow Pulse with Rupture of the Liver. (Bradykardie bei Leberrupturen.) H. Finsterer.
106 Indicanuria and Eye Disease. (Ueber Indikanurie und Augenkrankheiten.) S. Bernheimer.
107 Roentgentherapy of Duodenal Ulcer. (Röntgenbeobachtungen beim Ulcus duodeni.) S. Kreuzfuchs.
108 *Bilateral Facial and Auditory Paralysis After Salvarsan. (Beiderseitige Fazialis-Akustikus—Kochlearis- und Vestibularis—lähmung nach Salvarsan.) R. Goldmann.

104. **Attenuated Criminal Responsibility.**—The fact that frequently several morbid impulses coincide in the same individual is emphasized by von Wagner as necessary to be borne in mind in estimating criminal action from perverse impulses. Another factor is the possibility of the morbid impulse being rendered uncontrollable by certain physical conditions such as the changes at puberty and during menstruation or pregnancy. Research into the dream life of the individual is also important in the study of morbid impulses. They are the product of a disordered mental functioning and almost invariably other manifestations of the same can be discovered in the workings of the brain and the nervous functioning. From the penal standpoint, the question is the irresistible nature of the morbid impulse. Evidence as to a morbid impulse does not attenuate the individual's responsibility, as many persons have morbid impulses which yet they have strength enough to control. The question is to determine in each individual case whether at the moment of the crime the consciousness was pathologically disturbed to a degree which rendered the individual unable to control the morbid impulse.

105. **Bradycardia with Rupture of the Liver.**—Finsterer states that a woman of 46 had a pulse of 76 forty-five minutes after an abdominal contusion and it gradually dropped to 54 but kept all the time full and strong. The pain gradually spread over the entire abdomen and the lower segment of the rectus muscles became rigid, with other signs of internal hemorrhage. The pulse gradually rose to 80 and the abdomen was opened four hours after the accident. A tear was found extending through the entire liver. Recovery was prompt and without mishap. Finsterer encountered in another case this remarkable slowing of the pulse with hemorrhage of the liver, and his experiments on animals confirmed its diagnostic value although it is a comparatively transient phenomenon. The experiences to date suggest that rupture of the liver with bradycardia has a better prognosis than with a rapid pulse from the start; this latter indicates profuse hemorrhage and requires immediate intervention.

108. **Bilateral Facial and Auditory Paralysis After Salvarsan.**—Goldmann says that the systematic affection of both the facial and vestibular nerves in the case reported occurred too late to be regarded as a Herxheimer reaction. The symptoms did not develop until eight weeks after two intramuscular injections of salvarsan six months after syphilis had been acquired. The patient was an otherwise healthy man of 30; the symptoms indicate total exclusion of the vestibular and cochlear nerves on one side and nearly total on the other. The deafness is complete on one side and there is merely a trace of hearing on the other. The facial paralysis has partly subsided but the other symptoms still persist unmodified. The patient says that his hearing and ears had always been normal before. Goldmann is convinced that the trouble is an arsenic neuritis.

Zentralblatt für Chirurgie, Leipsic

March 9, XXXIX, No. 10, pp. 313-344

109 *Catarrh of the Mamma and Bleeding Mamma Premonitory of Cancer. (Zur Pathologie und prognostischen Bewertung des "serösen Katarrhs" der Brustdrüse und der "blutenden Mamma.") W. Mintz.
110 *Experimental Exophthalmic Goiter. (Zur experimentellen Erzeugung des Morbus Basedowii.) M. Baruch.
111 Umbilical Hernia. (Beziehung zwischen der Entwicklung der Nabelgegend und der Disposition zu Nabelbrüchen.) R. Wenglowski.

March 16, No. 11, pp. 345-384

112 Operative Treatment of Flat-Foot. (Bildung eines Lig. tibionaviculare durch freie Fascientransplantation bei Plattfuss.) Momburg.
113 *Iodin Treatment of Surgical Tuberculosis. (Verwendung der Jodtinktur bei der Behandlung der chirurgischen Tuberkulose.) W. Wolf.

109. **Catarrh of and Hemorrhage from Mammary Gland.**—THE JOURNAL mentioned March 18, 1911, Mintz' eight cases of serous exudation from the breast, and he here reports seven cases of the hemorrhagic type, with microscopic examination in five after removal of the bleeding gland. He found proliferative processes suggesting polypous growths, adenoma, cystadenoma, scirrhus or actual carcinoma in the various cases, imposing the necessity for radical treatment in all such cases.

110. **Experimental Exophthalmic Goiter.**—Baruch has been injecting ground human goiter material into the peritoneal cavity in dogs, rabbits and rats; this induced a syndrome in many instances closely resembling exophthalmic goiter in man. His experiments were more successful with the ground material than with the extract of the goitrous thyroid. In none of the cases was the goiter material obtained from persons with the exophthalmic type.

113. **Iodin Treatment of Surgical Tuberculosis.**—Wolf reports two cases in which the benefit from local application of tincture of iodin was strikingly apparent. The first patient was a young soldier with a tuberculous lesion on the right shoulder. After evacuating the abscess and curetting the focus, Wolf swabbed it freely throughout with 10 per cent. tincture of iodin and sutured the wound except for an iodoform gauze wick. In the second case the trouble was an extensive tuberculous lymphadenitis. The granulations were curetted away and all the surfaces, nooks and crevices of the large wound were swabbed freely with the iodin. In the two cases the wounds healed entirely in seventeen and twenty-four days,

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and the patients resumed their military duties the fourth and fifth week without a trace of recurrence of trouble to date.

Zentralblatt für Gynäkologie, Leipsic

March 9, XXXVI, No. 10, pp. 289-320

114 *Extragenital Septic Puerperal Infection. (Zur Kenntnis der septischen extragenitalen Infektionen im Wochenbett.) L. Nürnberger.

March 16, No. 11, pp. 321-352

115 *Complications from Ventrofixation of the Uterus. (Komplikationen nach ventraler Fixation des Uterus.) E. Geiser.
116 Attempted Abortion in Absence of Pregnancy. (Tentamen abortus provocandi deficiente graviditate uterina.) O. Klauber.
117 *Temporary Cap for Stump in Removing Cancerous Uterus. (Vorschlag zur Verhütung von Impfmetastasen im Paravaginalschnitt.) K. Czerwenka.
118 Pelvis Deformed from Infantile Spine. (Zur Kenntnis des Beckens mit mangelhafter Entwicklung der Wirbelsäule in der Längsrichtung—dyspygisches Becken.) A. Solowij.
119 Hypophysis Extract as Oxytocic. (Wehenerregung und Wehenverstärkung durch Pituitrin.) T. Nagy. (Pituitrin als Mittel zur Unterbrechung der Schwangerschaft bei Uebertragung der Frucht.) G. Hager.

114. Extragenital Puerperal Septic Infection.—In Nürnberger's case a woman of 40 who had borne several children and who had not been locally examined, developed fatal sepsis, the first symptoms observed the fourth day, with death the eighteenth day after spontaneous delivery. Necropsy revealed that the septic affection was a primary phlebitis of the internal saphenous vein with septic general infection but no connection with the genital organs. The trouble was evidently the result of accidental infection of some varicose enlargement of the vein. There had been no suspicion before the necropsy that the sepsis was anything but an ordinary puerperal fever. He summarizes from the literature a series of four similar cases and of three others in which appendicitis was the primary affection and four in which tuberculosis or typhoid was responsible for the sepsis. Freund has also reported a case in which an old osteomyelitic focus was responsible. The number of cases is much larger in which the extragenital accidental infection terminated in recovery. Döderlein having reported twenty-five cases of this character, the lochia being found sterile, as also in sixteen other cases of febrile puerperium. Thus 46 per cent. of his eighty-nine febrile parturients in 1,000 maternity cases traced their fever to some extragenital cause. These figures seem to show that thanks to the general use of rubber gloves we are entering on a new era of the pathology of the puerperium.

115. Complications After Ventrofixation of the Uterus.—Geiser reports a case of fibrosarcoma developing in the abdominal wall near where ventrofixation of the uterus had been done seven months before. In a second case fatal postoperative ileus developed; necropsy revealed incarceration of a loop of intestine by fibrous bands connecting the uterus with the abdominal wall. In a case of the kind published by Guggisberg an early operation saved the patient. The possibility of ileus from this cause should be suggested when symptoms suggesting ileus or perforation peritonitis develop in a woman who has had ventrofixation done.

117. Cap for Stump of Uterus.—Czerwenka recommended some time ago a rubber cap to enclose the stump of the uterus during or after an operation for malignant disease. He now confirms his previous statements but adds that the cap answers its purpose as a shield much better if an elastic cord is run through its lower edges.

Zentralblatt für innere Medizin, Leipsic

March 9, XXXIII, No. 10, pp. 221-244

120 Coagulation Time and Leukocytosis. (Blutgerinnungszeit und Leukocytose.) W. Schultz.
121 *Camphor-Phenol Mixture in Rheumatism. (Eine neue Behandlungsmethode von schweren rheumatischen Erkrankungen.) v. Chlumsky.

121. Camphor-Phenol Method of Treating Rheumatism.—Chlumsky states that he has never had such good results in treatment of rheumatic affections as since he has been applying externally a mixture of 2 parts ground camphor and 1 part phenol, adding 5 per cent. alcohol to the mixture. The result is an oily fluid, sparingly soluble in water, and free from caustic action. Only very delicate skins feel a slight smarting. He pours the mixture directly into old wounds, suppurating fistulas, etc., without the patients' complaining that it hurts them. It seems to be especially a poison for streptococci. He has used it to great advantage, he says, in hundreds of cases of erysipelas during the last few years. It causes a blue discoloration of the skin in some cases on external application, which he ascribes to liberation of the phenol. In a very severe case of articular rheumatism developing after a catarrhal affection of the nasopharynx, and rebellious to the salicylates and other measures, the pains keeping up for weeks and so intense that morphin was required, he applied the camphor-phenol mixture to the joints and in twenty-four hours the pains had materially subsided and with them the swelling; the temperature returned to normal the following day and the patient was quite cured by the end of the third week and has had no recurrence during the eight years to date. In two similar cases reported in detail the effect was equally good as also in a number of others; the effect was less marked in the chronic cases. Chlumsky's first communication on the subject was published twelve years ago, and he says that his further experience has only confirmed its value. The mixture may prove useful in scarlet fever and other diseases in which streptococci are concerned. For a mild external process he paints it lightly with the mixture and then applies a layer of cotton. With severely infected wounds and erysipelas, he dips the cotton in the mixture and applies it directly to the infected skin or wound with a layer of cotton above but no oil silk. In only a few cases, and then only when it was covered air-tight so that evaporation was impossible, did he observe a slight tendency to blister. In all other cases the only change was the scaling off of the diseased skin.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 5, XXXII, No. 28, pp. 289-296

122 Trypanosoma Disease in Dogs. (La Leishmaniosi spontanea del cane a Catania.) V. Panto.

March 7, No. 29, pp. 297-304

123 Research on Experimental Nephritis and Glycosuria. (Sul rapporto tra i perturbamenti renali da uranio la glucosuria fluorizinica.) G. Gargiulo.

March 10, No. 30, pp. 305-320

124 Retroperitoneal Tumors in Small Pelvis. (Contributo alla conoscenza, diagnosi, cura dei tumori solidi retroperitoneali della piccola pelvi.) A. Poggiolini.

March 12, No. 31, pp. 321-328

125 *Hexamethylenamin in Typhoid. (L'urotropina nella terapia dell'Ileotifo.) G. Malan.

March 14, No. 32, pp. 329-336

126 Anaphylaxis from Food. (Dell'anafilassi alimentare.) T. Silvestri.

March 17, No. 33, pp. 337-352

127 Serous Meningitis and Blunders in Its Diagnosis. (La diagnosi errata di tumore intracranico e la meningite sierosa.) A. Ceconi.
128 Syndrome Suggesting Syringomyelia from Arteriosclerosis. (Sindrome siringomieliche da arteriosclerosi neuro-midollare.) E. Paganelli.

125. Hexamethylenamin in Typhoid.—Malan gave daily 1.5 gm. of hexamethylenamin, fractioned, to twenty-one typhoid patients during a recent epidemic of thirty-two cases. Two died of the treated and five of the untreated patients, but the outcome seemed to depend somewhat on the month of the epidemic, all the patients recovering during the latter month regardless as to whether they had been given the drug or not, and all the deaths occurring in a certain month. He calls attention to the necessity for discriminating in estimating the effect of a given drug whether it is given at the beginning, height or decline of an epidemic, and also for bearing in mind the genus epidemicus.

Policlinico, Rome

March 3, XIX, No. 10, pp. 337-372

129 Modern Firearms from Surgical Point of View. (Le moderne armi da fuoco portatili da guerra sotto l'aspetto chirurgico.) P. Imbriaco. Commenced in No. 9.
130 Intravenous Injections of Mercuric Chlorid in Anthrax, etc. (Iniezioni di sicloruro di mercurio alla Baccelli nelle infezioni in genere e in quella carbonchiosa in specie.) C. D'Annunzio.

March 10, No. 11, pp. 373-408

131 *Sterilization of the Mouth. (Sulla disinfezione della bocca.) N. Pane and G. D'Agata.
132 *Severe Anemia in Pregnancy. (Anemia perniciosa da gravidanza.) T. Pontano

131. **Sterilization of the Mouth.**—Pane and D'Agata state that three years of further research have confirmed their previous statements in regard to the sterilizing action on the mouth of a 1 per cent. hot solution of sodium oleate. They describe research with the microbian flora of the mouth, the results showing how it is modified by this disinfectant which yet is free from irritating processes. To remove the taste of the soapy water they rinse the mouth out afterward with some ordinary disinfectant, such as a 5 per cent. solution of potassium chlorate. They think that the stimulating effect of the latter hastens the cure.

132. **Extreme Anemia in Pregnancy.**—Pontano states that in the case reported the hemoglobin dropped to 25 per cent. and the reds to 870,000 with 7,000 whites, at the eighth month, but the blood picture returned to normal after the birth of the child soon after. In a second pregnancy the same pernicious condition recurred, hemoglobin 20 per cent., reds 735,000, whites 14,000, of which 5 per cent. were normoblasts and megaloblasts. After spontaneous abortion the blood picture rapidly improved anew. This patient had had malaria but was apparently free from it at this time. In a recent case of Botaffio's a woman who had had this pernicious anemia during one pregnancy had no return of it in a second pregnancy. Notwithstanding this, Pontano thinks it is wise to interrupt the pregnancy when the blood shows such serious changes early. However, he adds, no general rule can be formulated.

Riforma Medica, Naples

March 2, XXVIII, No. 9, pp. 225-252

133 Anaphylaxis with Serum from Cold-Blooded Animals. (Ricerche sull'anafilassi con siero di animali a sangue freddo.) C. Ninni.

Brazil-Medico, Rio de Janeiro

February 22, XXVI, No. 8, pp. 71-80

134 *The Apparent Cure of Gonorrhea. (A blennorrhagia e a sua cura apparente.) A. Pereira.
135 *Chronic Nephritis. C. Fraga.

March 1, No. 9, pp. 81-90

136 Congenital Stenosis of the Lung. (Caso de estenose pulmonar congenita.) J. M. Gesteira.
137 Syphilitic Kidney Disease. (Syphilis do rim.) A. Leitão.

134. **Apparently Cured Gonorrhea.**—Pereira says that he could cite hundreds of cases of patients apparently entirely cured of gonorrhea who had a return of symptoms after years of silence, and he describes a few typical experiences of the kind. The disappearance of threads from the urine cannot be regarded as a reliable sign of complete recovery. Instillation of silver nitrate does not affect all persons alike and cannot be relied on to show up lurking gonococci. Negative findings on bacteriologic examination of the urine cannot be relied on; the urethroscope is more useful; careful examination of each half inch of the urethral walls may reveal old lesions with a persisting trace of inflammation. Any change in the shape of the membranous orifice in the bulbar region signifies infiltration, and any signs of a reaction in the mucosa indicate trouble below. The most reliable sign of persisting trouble is the slight morning secretion even when it seems to be constantly sterile.

135. **Chronic Nephritis.**—Fraga concludes this brief general review by advocating with simple albuminous nephritis a mixed diet, with abstention from toxigenic foods, from liquor of all kinds and from albuminous articles, discarding the whites of eggs to refrain from overloading the kidneys with alien albumin. In nephritis with a tendency to dropsy, he advises restriction of salt, according to the individual indications, with cautious purging and restriction to 1,000 gm. fluid a day. A strict milk diet in this form is not necessary unless the kidney is impermeable; it may even do harm by increasing the edema from the overdose of fluids, fatiguing the heart by the obstacle in the peripheral and visceral circulation and increasing the albuminuria by the alien albumin it contains. On the other hand, a milk diet is extremely useful in nephritis showing a tendency to uremia. In the chronic cases he keeps his patients on a milk-vegetable diet with milk alone five days in each month, after a purge. If uremia is impending, nothing but milk should be allowed or in severe cases nothing but water for two or three days, and then the strict milk diet. Trinitrin for ten days, then potassium iodid for twenty each month give good results. On menace of uremia, a powerful purgative should be given and then the water and later the milk diet.

Semana Medica, Buenos Aires

February 15, XIX, No. 7, pp. 293-344

138 Analysis of the Phenol Compounds. (Contribucion a la sistematica analytica de los compuestos ciclicos de funcion fenolica.) J. A. Sanchez.
139 *Serotherapy of Nephritis. (Seroterapia de la nefritis.) M. T. M. Bisso.

139. **Serotherapy in Nephritis.**—Bisso has been applying the serum of blood drawn from the renal vein of the goat and here relates her experiences in this line after reviewing the history of the subject and the previous trials in clinics in various countries. [One of the later articles on the subject was abstracted in THE JOURNAL Dec. 18, 1909, p. 2137.] Bisso reports four cases in which this serotherapy was systematically applied. The results encourage its further use in acute exacerbations of chronic nephritis, in all infectious diseases with threatening uremia, in cases of excessive arterial tension supposedly of renal origin, and whenever uremia is installed, regardless of its origin. She administered without by-effects from 10 to 110 c.c. as the daily dose but for fear of accidents from serum sickness never gave over 20, 30 or 40 c.c. at a time. In her first case the interstitial nephritis was in the terminal stage but under the serotherapy 1,500 c.c. of urine was voided and 3 per thousand chlorids, the headache and dyspnea subsided and the blood pressure dropped—effects which months of other treatment and dieting had not been able to obtain. The patient was a woman of 38. In two other cases the specific action of the serotherapy was manifest but the organism was so saturated with nephrolysins that no permanent benefit resulted. In the fourth case the patient was in uremic coma from transient deficiency of the kidneys, and venesection and other measures supplemented by the serotherapy safely tided him past the danger stage and he has been in good health since.

Hospitalstidende, Copenhagen

February 15, LV, No. 7, pp. 173-204

140 Retrograde Incarceration in General; Report of Case. H. v. Thun.

February 21, No. 8, pp. 205-236

141 *Carbohydrate Days in Dietetic Treatment of Diabetes (Om Virkningen af "Kulhydratdage" i Diabetesbehandlingen.) O. V. C. E. Petersen.

February 28, No. 9, pp. 237-260

142 Comparative Weight at Beginning and End of Scarlet Fever. (Om vore Skarlagensfeberpatienters Vægtforhold.) S. T. Sørensen and A. Levin.

March 6, No. 10, pp. 261-292

143 Two Cases of Otogenic Pyemia with Recovery. (Om otogen Pyæmi.) V. Them.

March 13, No. 11, pp. 293-324

144 Complement Fixation in Diagnosis of Echinococcus Disease in Man. (Paavisning af Ekinokok hos Mennesker ved Undersøgelse af den syges Blod—Komplementbindingsreaktion.) O. Thomsen and G. Magnusson.

141. **"Carbohydrate Days" in Dietetic Treatment of Diabetes.**—Petersen's tables show that the benefit for diabetics of restriction to a certain form of carbohydrate diet is not from any special substance in any special form of starch but rather from the fact that the carbohydrate in question supplies a very small proportion of calories. The benefit is thus from the partial starvation. The different carbohydrates can be varied and combined or not—all that is necessary to ensure benefit from them is to have the patient's appetite appeased with them while he is ingesting less calories than are used up on that day.

Books Received

JOURNAL Announcements, Knocks and Boosts, Books Received and changes in the Public Service will be found in the advertising section, commencing on the second page following reading matter.

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